MANUFACTURERS' RECORD

A WEEKLY SOUTHERN INDUSTRIAL RAILROAD AND FINANCIAL NEWSPAPER.

Vol. XLIV. No. 3.

$4.00 per year. Single Copy 10 Cents.

Chief of Bureau of Statistics, Dept. of Commerce and Labor

TWENTY YEARS OF SOUTHERN PROGRESS.

No. 4.

The Magnitude of Southern Lumber Interests

YEARS.

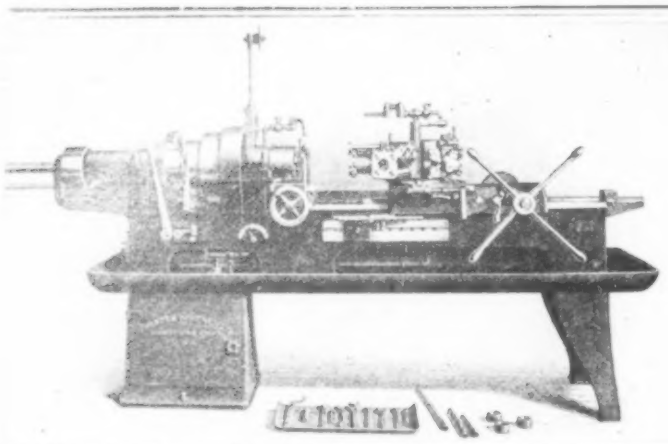
1880—Establishments	6,626
1900—Establishments	14,062
1880—Capital	$23,546,076
1900—Capital	$181,702,526
1880—Value of products	$39,930,432
1900—Value of products	$188,114,524
1900—Total cut of lumber	14,213,872,000 feet.

1900—Capital invested in lumber mills in the South was $500,000 greater than the entire amount so invested in the whole country in 1880.

1880—South had 25% of woodworking establishments of country.
1900—South had 42% of woodworking establishments of country.

THE FULL TABLE OF CONTENTS WILL BE FOUND ON PAGE 56.

Baltimore, August 6, 1903.



New Model Turret Lathes.

FIVE SIZES.

⅝x4½″ 1x10″ 1½x18″ 2x26″ 3½x36″

THESE MACHINES are not only adapted to the production of duplicate pieces in large lots, but their use is advantageous for the manufacture of duplicate work in lots of not more than FIVE or SIX PIECES.

IT HAS BEEN DEMONSTRATED that these machines can be set up for given work in less time and with less expense for tools than any other machine of this class.

Send to New York office for illustrated booklet.

PRATT & WHITNEY CO.

136-138 Liberty St., New York **Works, Hartford, Conn., U. S. A.**

OFFICES:

BOSTON, - - - - 141 PEARL STREET.
PHILADELPHIA, - - 21ST AND CALLOWHILL STREETS.
PITTSBURG, PA., - - - - FRICK BUILDING.
CHICAGO, - - - - 46 SOUTH CANAL STREET.
ST. LOUIS, MO., - - 516 NORTH THIRD STREET.
LONDON, - - - - BUCK & HICKMAN, LTD., 2, 4, WHITECHAPEL ROAD.

The Marion Steam Shovel Company,

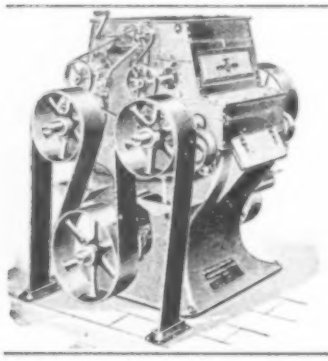
MANUFACTURERS OF

Steam Shovels, Ballast Unloaders, Dredges and Ditchers, Etc.

We manufacture machinery in this line in all sizes and suitable for all classes of work. Where large capacity is wanted and where exceedingly hard material is encountered, we call special attention to Model "80" and Model "90." We invite the most careful investigation. For full information address

THE MARION STEAM SHOVEL COMPANY, Marion, Ohio, U. S. A.,

or GEO. W. BARNHART, Western Manager, No. 4 Sutter Street, SAN FRANCISCO, CAL.



FLOUR MILL MACHINERY.

The kind that stands high in the estimation of millers everywhere. Its 51 years record is a good one. We build complete Flour, Corn and Cereal Mills of any desired capacity. We make Mill and Elevator Machinery and Supplies of all kinds. Portable Buhr Stone Mills, Roller, Corn and Feed Mills. Bolting Cloths made up to order.

HIGH-GRADE SHAFTING, POWER CONNECTIONS, GEARING and PRACTICAL ROPE DRIVES a Specialty.

CORRESPONDENCE SOLICITED.

NORDYKE & MARMON CO., 1133 West Morris St. INDIANAPOLIS, IND., U. S. A.

Interstate Corporation Record

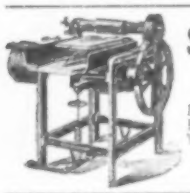
contains Subscription List, Charter, By-Laws, First Meetings, Secretary's Minutes, Certificate, Register, Transfer and Dividend Records, Stock Ledger.

American National Bank Record

No 1—for use when newly organized; No 2—for conversion of state banks into national.

Stock Certificates, Bonds, Seals, U. S. Lock Seal with Two Keys.

J. W. Middleton, Publisher, Stationer,
167 Dearborn Street CHICAGO.



Sinclair Ironers are the First and Best **Sinclair Washers** are the Latest and Best.

S. H. SINCLAIR CO.

F. A. Walker, Prest. Henry H. Horr, Treas. W. G. Saunders, Secy. Manufacturer of **LAUNDRY MACHINERY,** 8 and 10 S. Canal St., CHICAGO, ILL.

Write for Catalogue "R." Estimates cheerfully furnished.

"THE COLUMBIA" MODERN LAUNDRY MACHINERY. Latest. "Up to date." "Prices Right."

Wilson Laundry Machinery Company. Send for Catalog R. Columbia, Pa.

LAUNDRY MACHINERY, HAND OR POWER.
For Hotels, Dyehouses, Commercial Laundries and Domestic Use.
Write for Price. A. L. DAWSON & CO., 27-31 W. Washington St., Chicago.

SHARP'S Latest Styles Ironing & Washing Machinery
Complete Plants Supplied.
ADAMS LAUNDRY MACHINERY CO., 1931-1937 6th Ave., Troy, N. Y.

LUFKIN

Steel Tapes

ARE INDISPENSABLE FOR ACCURATE WORK

MADE BY **The Lufkin Rule Co., - - Saginaw, Mich.**

For Sale Everywhere. Send for Catalogue.

Give Attention to the Construction of OUR WHEELBARROW.

The tendency is to put as much of the barrow to the wheel, and as little as is possible, with a light, hard wood.

Handled by every hardware house in the Union.

KILBOURNE & JACOBS MFG. CO., COLUMBUS, O.

Newport News Shipbuilding & Dry Dock Co.

WORKS AT NEWPORT NEWS, VA., ON HAMPTON ROADS.

Equipped with two large Basin Dry Docks of the following dimensions:

	No. 1.	No. 2.
Length on top	610 feet.	827 feet.
Width on top	130 "	162 "
Width on bottom	50 "	80 "
Draught of water over sill	25 "	30 "

Shops are equipped with modern machinery capable of doing the largest work required in ship construction. Tools driven by electricity and compressed air used in constructing and repairing vessels. For estimates and further particulars, address,

C. B. ORCUTT, Pres't, No. 1 Broadway, New York.

"TANK TALK"

CYPRESS TANKS

We manufacture all sizes and shapes of Cypress Tanks, Tubs, Vats, Covers and Gauges. Let us know your wants. We will be pleased to name special delivered prices.

G. M. DAVIS & SON, Palatka, Fla.

Branch Office—26 Cortlandt St., New York City.

XUM

Classified Index of Articles Advertised

For Alphabetical Index See Page 38.

Acid Chambers.
Caroline Iron Works, Baltimore, Md.
Robertson Mfg. Co., James, Baltimore, Md.
Valk & Murdoch Iron Wks, Charleston, S. C.

Accountants.
Appraisal & Audit Co. of America, Chicago, Ill.
Audit Co. of New York, The New York, N. Y.
Zell, Robt. Ross, Birmingham, Ala.

Accumulators.
Bushnell Press Co., G. H., Thompsonville, Conn.
Watson-Stillman Co., New York, N. Y.
Wood, R. D. & Co., Philadelphia, Pa.

Agents. (Manufacturers')
Maxfield, H. E., & Co., New York, N. Y.
Roberts, J. J., & Co., Newport News, Va.

Agricultural Implements.
Farquhar Co., Ltd., A. B., York, Pa.
Hench & Dromgold Co., York, Pa.

Air Brakes.
Westinghouse Air Brake Co., Pittsburg, Pa.
Westinghouse Traction Brake Co., New York, N. Y.

Air Compressors.
American Air Compressor Works, New York, N. Y.
Brown-Cochran Co., Lorain, Ohio.
Hardie-Tynes Mfg. Co., Birmingham, Ala.
Ingersoll-Sergeant Drill Co., New York, N. Y.
McKiernan Drill Co., New York, N. Y.
Pneumatic Engineering Co., New York, N. Y.
Rand Drill Co., New York, N. Y.
Stilwell-Bierce & Smith-Valle Co., Dayton, O.
Sullivan Machinery Co., Chicago, Ill.
Westinghouse Traction Brake Co., New York, N. Y.

Aluminum Products. (Bars, Sheets, Tubes, etc.)
Pittsburg Reduction Co., Washington, D. C.

Ammunition.
Peters Cartridge Co., Cincinnati, O.

Angle Power Transmitter.
Standish, A., Estate, Columbus, O.

Anti-Friction Metals.
Bailey-Lebby Co., Charleston, S. C.
Hiertz, Theo., Metal Co., St. Louis, Mo.
Ryan, J. J., & Co., Chicago, Ill.
Van Duzen, E. W., Co., Cincinnati, O.

Antimony.
Hiertz, Theo., Metal Co., St. Louis, Mo.
Ryan, J. J., & Co., Chicago, Ill.

Appraisers. (Mfg. Plants, etc.)
Appraisal & Audit Co. of America, Chicago, Ill.
Morrison, Hugh S., Richmond, Va.

Architects.
Dyer, D. H., & Son, Fall River, Mass.
Gasser, Paul, Tampa, Fla.
McMichael & Hunter, Charlotte, N. C.
Makepence, C. E., & Co., Providence, R. I
Milburn, Frank P., Columbia, S. C.
Mitcham & Beach, Camden, S. C.
Praray, C. A. M., & Co., Providence, R. I.
Ramsay, John E., & Co., Salisbury, N. C.
Shaw, Fred. G., Augusta, Ga.
Sheffield, O. H., & Co., Atlanta, Ga.
Wnaley, W. B. S., & Co., Columbia, S. C.
Wheeler & Runge, Charlotte, N. C.
White, H. E., Rock Hill, S. C.

Architectural Iron Work.
Belmont Iron Works, Philadelphia, Pa.
Buffalo Wire Works Co., Buffalo, N. Y.
Chesapeake Iron Works, Balto., Md.
Eureka Supply Co., Chattanooga, Tenn.
Gainesville Iron Works, Gainesville, Ga.
Lombard Iron Works & Supply Co., Augusta, Ga.
Sanford-Day Iron Works, Knoxville, Tenn.
Schreiber, L., & Sons Co., The, Cincinnati, O.
Virginia Bridge & Iron Co., Roanoke, Va.
Wisconsin Iron & Wire Works, Milwaukee, Wis.

Asbestos.
Southern Pipe Covering Co., Richmond, Va.

Attorneys.
Talley, Robt. H., Richmond, Va.

Babbitt Metal. (See Anti-Friction Metal.)

Bags, Rope and Twine.
American Mfg. Co., New York City.
Bailey, John T., & Co., Philadelphia, Pa.
Columbian Cordage Co., Auburn, N. Y.

Balls. (Steel.)
Federal Mfg. Co., Cleveland Ball Factory, Cleveland, O

Bankers and Brokers.
Beaumont Trust Co., Beaumont, Tex.
Continental Trust Co., Baltimore, Md.
Exchange Bank, Macon, Ga.
First National Bank, Richmond, Va.
Fisk & Robinson, New York, N. Y.
Georgia Railroad Bank, Augusta, Ga.
Hambleton & Co., Baltimore, Md.
Hibernia Bank & Trust Co., New Orleans, La.
Hornaday, J. P., & Co., Cincinnati, O.
International Trust Co., Baltimore, Md.
MacRae, Hugh, & Co., Wilmington, N. C.
Maryland Trust Co., Baltimore, Md.
Martin & Bro., Augusta, Ga.
McAdoo, Calvin N., Greensboro, N. C.
Merchants & Farmers' Na'l Bk., Charlotte, N. C.
Merchants National Bank, Baltimore, Md.
Middendorf, J. Wm., & Co., Baltimore, Md.
Palmetto Bank & Trust Co., Columbia, S. C.
Richmond Trust & Safe Deposit Co., Richmond, Va.
Savannah Trust Co., Savannah, Ga.
Thomson, Edw. H., & Sons, Baltimore, Md.
Thomson, Henry W., Spartanburg, S. C.
Tobey & Kirk, New York, N. Y.
Trask, Spencer, & Co., New York, N. Y.
Williams, John L., & Sons, Richmond, Va.

Bar Iron and Steel.
Bourne-Fuller Co., Cleveland, O.
Milton Mfg. Co., Milton, Pa.
Old Dominion Iron & Nail Works Co., Richmond, Va.

Belting.
Alexander Bros., Philadelphia, Pa.
American Supply Co., Providence, R. I.
Bailey-Lebby Co., Charleston, S. C.
Baltimore Belting Co., Baltimore, Md.
Boston Belting Co., Boston, Mass.
Caldwell, H. W., & Son Co., Chicago, Ill.
Cameron & Barkley Co., Charleston, S. C.
Case Mfg. Co., Columbus O.
Columbia Supply Co., Columbia, S. C.
Freese, E. M., & Co., Galion, O.
Gandy Belting Co., Baltimore, Md.
Hartfelder-Garbutt Co., Savannah, Ga.
Lombard Iron Works & Supply Co., Augusta, Ga.
Main Belting Co., Philadelphia, Pa.
Meier's, Joseph, Sons, New York, N. Y.
Miller Oil & Supply Co., Indianapolis, Ind.
National Rawhide & Belting Co., Niles, Mich.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Pearless Rubber Manufacturing Co., New York, N. Y.
Rossendale-Reddaway Belting&Hose Co., Newark, N. J.
Shultz Belting Co., St. Louis, Mo.
Voorhees Rubber Mfg. Co., Jersey City, N. J.
Whitehurst Belting Co., Baltimore, Md.

Belting. (Chain.)
Bartlett C. O., & Snow Co., Cleveland, O.
Caldwell, H. W. & Son Co., Chicago, Ill.
Federal Mfg Co., Cleveland, Ohio.
Jeffrey Manufacturing Co., Columbus, O.
Link-Belt Engineering Co., Nicetown (Phila.), Pa.
Taylor Iron & Steel Co., High Bridge, N. J.

Belt Fasteners.
American Supply Co., Providence, R. I.

Belt Lacing.
National Rawhide & Belting Co., Niles, Mich.
Shultz Belting Co., St. Louis, Mo.

Belt Lacing Machines.
Diamond Drill & Machine Co., Birdsboro, Pa

Belt Preserver.
Shultz Belting Co., St. Louis, Mo.

Blower. (Argand Steam.)
McClave-Brooks Co., Scranton, Pa.

Blowers. (Pressure.)
Allington & Curtis Mfg. Co., Saginaw, E. S., Mich.
American Blower Co., Detroit, Mich.
Dixie Mfg. Co., Baltimore, Md.
Sturtevant Co. B. F., Boston, Mass.

Blowers and Exhaust Fans.
Allington & Curtis Mfg. Co., Saginaw, E. S. Mich
American Blower Co., Detroit, Mich.
Andrews & Johnson Co., Chicago, Ill.
Crosby St. Gage & Valve Co., Boston, Mass.
Dixie Mfg. Co., Baltimore, Md.
Mechanical Appliance Co., Milwaukee, Wis.
Southwark Foundry & Machine Co., Phila., Pa.
Stocker, George J., St. Louis, Mo.
Sturtevant Co., B. F., Boston, Mass.

Blue Prints.
Blanke, Ewald G., Baltimore, Md.
Myers, Finney & Morrison, Richmond, Va.

Bobbins.
Sherwood Bobbin & Mfg. Co., Greensboro, N. C.

Boilers.
Alexander, S. B., Jr., Co., Charlotte, N. C.
Atlas Engine Works, Indianapolis, Ind.
Babcock & Wilcox Co., New York, N. Y.
Birmingham Boiler Works, Birmingham, Ala.
Brownell & Co., The, Dayton, O.
Cameron & Barkley Co., Charleston, S. C.
Chicago House Wrecking Co., Chicago, Ill.
Codd Co., E. J., Baltimore, Md.
Continental Gin Co., Birmingham, Ala.
Dunn Machinery Co., Atlanta, Ga.
Farquhar Co., Ltd., A. B., York, Pa.
Frick Co., Waynesboro, Pa.
Gibbes, W. H., & Co., Columbia, S. C.
Girard Machine & Tool Co., Philadelphia, Pa.
Hartfelder-Garbutt Co., Savannah, Ga.
Hartley Boiler Works, Montgomery, Ala.
Keeler Co., E., Williamsport, Pa.
Leffel, James, & Co., Springfield, Ohio.
Link-Belt Engineering Co., Philadelphia, Pa.
Lombard Iron Works & Supply Co., Augusta, Ga.
Mecklenburg Iron Works, Charlotte, N. C.
Murray Iron Works Co., Burlington, Iowa.
Petroleum Iron Works Co., Washington, Pa.
Phoenix Iron Works Co., Meadville, Pa.
Savannah Locomotive & Car Works, Savannah, Ga
Scaife, Wm. B., & Sons, Co., Pittsburg, Pa.
Schofields, J. S. Sons Co., Macon, Ga.
Shaffer Boiler & Engine Mfg. Co., Baltimore, Md
Smith Co., S. Morgan, York, Pa.
Smith-Courtney Co., Richmond, Va.
Southern Eng. & Boiler Works, Jackson, Tenn.
Stirling Co., Chicago, Ill.
St. Louis Iron & Machine Works, St. Louis, Mo.
Union Iron Works Co., Selma, Ala.
Valdosta Foundry & Machine Co., Valdosta, Ga.
Valk & Murdoch Iron Works, Charleston, S. C.
Walke, Henry, Co., Norfolk, Va.
York Mfg. Co., York, Pa.

Boiler Flue Scrapers. (See Flue Scrapers.)

Boiler Tube Cleaners.
Gem Mfg. Co., Pittsburg, Pa.

Bolts, Nuts, Rivets and Studs.
Hamel, John J., & Co., Pittsburg, Pa.
Milton Mfg. Co., Milton, Pa.
Hoopes & Townsend Co., Philadelphia, Pa.
Old Dominion Iron & Nail Works Co., Richmond, Va
The Diamond State Steel Co., Wilmington, Del.

Bonds. (Fidelity.)
Fidelity & Deposit Co., Baltimore, Md.

Bonds. (Union Brick.)
Union Brick Bond Co., Pittsburg, Pa

Bottling Outfits.
Vilter Mfg. Co., Milwaukee, Wis.

Brakes.
Westinghouse Traction Brake Co., New York, N. Y

Brass. (Sheet, Rod and Wire.)
Waterbury Brass Co., New York, N. Y.

Brass Goods.
Bailey-Lebby Co., Charleston, S. C.
Buckeye Iron & Brass Works, Dayton, O.
General Fire Extinguisher Co., Providence, R. I.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.
Lunkenheimer Co., Cincinnati, O.
Maxfield, H. E., & Co. New York, N. Y.
Simmons, John, Co., New York City.
Van Duzen, E. W., Co., Cincinnati, O.

Brass Specialties. (Eyelets, Ferrules, etc.)
Waterbury Brass Co., New York, N. Y.

Breaker Teeth and Links.
Wilcox Mfg. Co., D., Mechanicsburg, Pa.

Brewers' Machinery.
Vilter Mfg. Co., Milwaukee, Wis.

Brick.
Georgia Vitrified Brick & Clay Co., Augusta, Ga.
Huennekes, H., & Co., New York, N. Y.
Powhatan Clay Mfg. Co., Richmond, Va.
Schwarz-System Brick Co., New York, N. Y.

Brick and Clayworking Machinery and Supplies.
Carnell, George, Philadelphia, Pa.
Fernholtz Brick Machinery Co., St. Louis, Mo.
Freese, E. M. & Co., Galion, O.
Gibbes, W. H., & Co., Columbia, S. C.
Huennekes, H., & Co., New York, N. Y.
Schwarz System Brick Co., New York, N. Y.
Steele, J. C., & Sons, Statesville, N. C.
St. Louis Iron & Machine Works, St. Louis, Mo.

Bridges.
General Supply & Construction Co., New York, N. Y.
Frink & Hazen, Baltimore, Md.
Scaife, Wm. B., & Sons, Co., Pittsburg, Pa.
Virginia Bridge & Iron Co., Roanoke, Va.

Buckets. (Coal.)
Rawson & Morrison Mfg. Co., Cambgpt., Boston, Mass.

Buckets. (Excavators.)
Hayward Co., New York N. Y
Stuebner, G. L., Iron Works, Long Island City, N. Y.

Buckets. (Ore.)
Link-Belt Engineering Co., Nicetown, Phila, Pa.
Stuebner, G. L., Iron Works, Long Island City, N. Y.

Building Blocks (Hollow Concrete) **& B. B. Mchy.**
Palmer, Harmon S., Hollow Concrete B. B. Co., Washington, D. C.

Burlap.
Bailey, John T., & Co., Philadelphia, Pa.

Bushings. (Graphite and Bronze.)
Graphite Lubricating Co., Bound Brook, N. J.

Cableways. (Wire Rope.)
Broderick & Bascom Rope Co., St. Louis, Mo.
Contractors. Plant Mfg. Co., Buffalo, N. Y.
Flory, S., Mfg. Co., Bangor, Pa.
Lidgerwood Mfg. Co., New York, N. Y.
Rawson & Morrison Mfg. Co., Cambgpt., Boston, Mass.
Roebling's Sons Co., John A., Trenton, N. J.
Trenton Iron Co., Trenton, N. J.

Calcium Chloride.
Carbondale Chemical Co., Carbondale, Pa.

Canmakers' Machinery.
Niagara Machine & Tool Works, Buffalo, N. Y.

Canning Machinery.
Sprague Canning Machinery Co., Chicago, Ill.

Canning Supplies.
Sprague Canning Mchy. Co., Chicago, Ill.

Capstans. (Hand and Steam.)
American Ship Windlass Co., Providence, R. I.

Card Clothing.
American Supply Co., Providence, R. I.

Carriage and Wagon Hardware.
Wilcox Mfg. Co., D., Mechanicsburg, Pa.

Cars. (Mine, Dump and Logging.)
Apex Equipment Co., New York, N. Y.
Austin Mfg. Co., Chicago, Ill.
Birmingham Boiler Works, Birmingham, Ala.
Jackson Manufacturing Co., Harrisburg, Pa.
Kilbourne & Jacobs, Mfg. Co., Columbus, O.
Koppel, Arthur, New York City.
Link-Belt Engineering Co., Philadelphia, Pa.
Malee Co., The, Cincinnati, O.

A PLACE OF ITS OWN.

The Burt . . . Exhaust Head

is not made to be sold in competition with others. It has a place on the market peculiarly its own.

Built by skilled workmen, from the best materials money can buy, it has lasting qualities, will cost nothing for repairs, is constructed on right and safe principles, and will give permanent satisfaction.

It is a better purchase than any Exhaust Head on the market, and is fully guaranteed.

"We would not be without the Burt Exhaust head at any price."
Wagner Artificial Ice Co.
Cleveland, O.

THE BURT MFG. CO.

Largest Mfrs. of Oil Filters in the World,

Akron, Ohio, U. S. A.

Supplied also by Engine Builders, Dealers and Power Contractors.

ACHESON TRADE ELECTRIC FURNACE MARK GRAPHITE

ACHESON GRAPHITE

Manufactured in the Electric Furnace. Write us for full information regarding the use of this material in high grade protective coatings, lubricating compounds, pipe joint compounds, as foundry facings, for electrotyping purposes, etc.

INTERNATIONAL ACHESON GRAPHITE CO., Niagara Falls, N. Y., U. S. A.

LARGEST DOOR IN THE WORLD
KINNEAR
STEEL ROLLING DOORS SHUTTERS
SEND FOR CATALOGUE "K"
THE KINNEAR MFG. CO. COLUMBUS OHIO, U.S.A.
SIZE 35 FEET 6 INCHES WIDE BY 20 FEET HIGH-WEIGHT 7000 POUNDS-OPERATES WITH PERFECT EASE.
BOSTON 85 WATER ST. NEW YORK 45 VESEY ST. CHICAGO 112 CLARK ST. PHILADELPHIA 1011 CHESTNUT ST

NONPAREIL ANTI-FRICTION METAL

Nonpareil Anti-Friction Metal.

Best Anti-Friction Metal for all machinery bearings. For high speed and heavy crushing weight it has no equal.

THEO. HIERTZ METAL CO., Sole Manufacturers,
10th and Poepping Sts., ST. LOUIS, MO.

Manufactures all grades Babbitt Metals, Solder, Bar Tin, Bar Lead, Lead Car Seals, Pig Tin, Pig Lead, Antimony, Copper, Spelter, etc.

SAND-BRICKS.

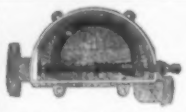
Every **"Sandbank or Sandhill"** is the best place for a **"Brickyard."** No need of clay, dryers or kilns to produce a strong, sound, perfect **"Face Brick"** and at a lower cost than common clay bricks are usually produced, out of sand and a small percentage of lime, in ten hours, in any weather, winter or summer.

114-118 LIBERTY ST., NEW YORK. H. HUENNEKES & CO. 114-118 LIBERTY ST., NEW YORK.

are erecting and equipping factories of any capacity in any locality of the United States, Canada, Mexico, Cuba and South America under their patented process known as

"HUENNEKES SYSTEM"

Factories in operation in different sections of the United States and in other countries. Any size, shape or color of bricks produced under this system and every brick perfect. Besides factories in operation there are now being erected other factories under our system from Montreal, Canada, throughout the United States to Monterey, Mexico. Facts are Better Proofs than Testimonials, and seeing one of our factories in operation is to believe that our system is a thorough success and a big money maker. Write for illustrated pamphlet and particulars.



Sick People

get used to their sickness. Wasters of steam and coal get used to their waste.

Heintz Steam Traps

not only save their cost in coal in six months, but make your plant do more work and more regular work.

We prove it before we ask you to pay. Send for booklet 1.

WILLIAM S. HAINES CO.
136 South Fourth Street, Philadelphia.

PROTECTION

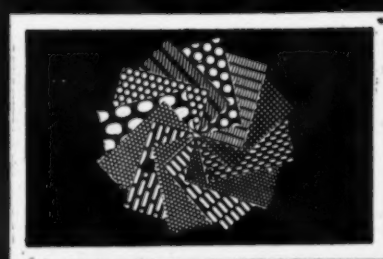
The only reliable and accurate watchman clock.

30 DAYS' FREE TRIAL
to establish this claim.

The Waggoner Watchman Clock Company,
GRAND RAPIDS, MICH.

Our booklet "Common Sense For Business Men" contains information of interest to every business man interested in economy.

SCREENS OF ALL KINDS
PERFORATED METAL
OF EVERY DESCRIPTION



THE HARRINGTON & KING PERFORATING CO.
234 N. UNION ST. CHICAGO

THE SAFETY
Car Heating & Lighting Co.
160 Broadway, New York.

CAR LIGHTING
By the Pintch System.

CAR HEATING
By Steam Jacket System, Hot Water Circulation, Return and Direct Steam Systems.

AUTOMATIC STEAM COUPLERS.

Imhauser's Watchman's Time Detectors.

Cannot fail.
Write for Catalogue.

Made with 12 or 24 different keys. Contain all the modern improvements. Warranted in every way. Cannot be tampered with without detection.
MANUFACTURED BY
E. IMHAUSER & CO., 206 Broadway, New York.

FACTORY TIME CHECKS.
They are being used more and more.
Write for our pamphlet, "Time Checks and Their Use." We also make
MERCHANDISE CHECKS.
AMERICAN RAILWAY SUPPLY CO.
Address Dept. J. 24 Park Place, New York.

TABOR Stop Motion COUNTERS

Tell in a second how fast your machine is going—always reliable.

Sample, $1.00
Liberal Discounts to the Trade.

THE TABOR MFG. CO.
18th and Hamilton Sts. PHILADELPHIA, PA.

My Letters Make Good Castings. 2

Foundrymen and Patternmakers everywhere use them. Made in many sizes and styles and of lead composition or brass. Wholesale or retail and at low prices. Samples free.
A. W. BRIM, Seneca Falls, N. Y.

THE ROBINSON
OILS
"they lubricate more, and outlast other oils."
High-Grade,
Cylinder, Engine, Spindle, Dynamo Oils.
Oils for all types of Machinery.
GREASES.
WM. C. ROBINSON & SON CO.
217 South St., BALTIMORE, MD.

Watchman's Time Detectors,
LATEST IMPROVED.
With Safety Lock Attachments.
Portable and Electric.

For any number of stations. Give an exact record of the night watchman's rounds. Insurance rates reduced.
Write for circulars and full particulars to
B. NANZ, 127 Duane St., N. Y.

Conveying, Elevating and Power Transmitting Machinery
A COMPLETE LINE OF THE BEST.

Caldwell Helicoid Conveyor!

CALDWELL'S HELICOID

The only perfect spiral conveyor with continuous flight—no laps or rivets.

Seamless Steel Elevator Buckets, Elevator Boots, Rope Transmission Machinery, Sprocket Wheels, Link Belting, Shafting, Belting, Hangers, Pulleys, Gears, Carpullers, Automatic Power Grain Shovels, Wood Split Pulleys, Wire Cloth, Perforated Metal.

Complete Equipments for handling materials of all kinds.

H. W. CALDWELL & SON COMPANY,
Western Avenue, 17th to 18th Streets, CHICAGO, ILL.

Our New Catalogue No. 26 (440 Pages, Cloth Bound), will be Sent Upon Request.

EASTERN SALES AND ENGINEERING OFFICE, 410-95 Liberty St., New York, N. Y. SOUTH-EASTERN SALES AND ENGINEERING OFFICE, 411 Prudential Bldg., Atlanta, Ga.
SOUTH-WESTERN SALES AND ENGINEERING OFFICE, 202 Trust Bldg., Dallas, Tex.

Classified Index of Articles Advertised

For Alphabetical Index See Page 38

Peacock Iron Works, Selma, Ala.
Sanford-Day Iron Works, Knoxville, Tenn.
Savannah Loco. Wks. & Supply Co., Savannah, Ga.
Steele, J. C., & Sons, Statesville, N. C.
Stuebner, G. L., Iron Works, Long Island City, N. Y.
Union Iron Works, Selma, Ala.
Wonham-Magor Engine Works, New York, N. Y.

Cars. (Passenger and Freight.) (See Railroad Equipment and Supplies.)

Car Building Machinery.
Fay, J. A., & Egan Co., Cincinnati, O.

Car Couplers and Knuckles.
Chester Steel Castings Co., Philadelphia, Pa.
Latrobe Steel & Coupler Co., Philadelphia, Pa.
Safety Car Heating & Lighting Co., New York, N. Y.

Car Lighting and Heating.
Safety Car Heating & Lighting Co., New York, N. Y.

Car Seals. (Lead.)
Hiertz, Theo., Metal C., St. Louis, Mo.

Car Wheels, Axles and Trucks.
Koppel, Arthur, New York, N. Y.
Macleary, J. H., & Co., Suffolk, Va.
Peacock Iron Works, Selma, Ala.
Sanford-Day Iron Works, Knoxville, Tenn.
Union Iron Works Co., Selma, Ala.

Casters and Caster Wheels.
Standard Caster & Wheel Co., New York, N. Y.

Castings. (Brass and Bronze.)
Lunkenheimer Co., Cincinnati, O.
Phosphor Bronze Smelting Co., Ltd., Phila., Pa.
Richmond Pattern Works, Richmond, Va.
Ryan, J. J., & Co., Chicago, Ill.
Van Duzen, E. W., Co., Cincinnati, O.

Castings. (Aluminum.)
Pittsburg Reduction Co., Washington, D C.
Ryan, J. J., & Co., Chicago, Ill.

Castings. (Iron.)
Chattanooga Roofing & Fdry. Co., Chattanooga, Tenn.
Dimmick Pipe Co., Birmingham, Ala.
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
Lombard Iron Works & Supply Co., Augusta, Ga.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
Maryland Fdry. & Mch. Co., Baltimore, Md.
Richmond Pattern Works, Richmond, Va.
Ross-Meehan Fdry. Co., Chattanooga, Tenn.
Sanford-Day Iron Works, Knoxville, Tenn.
Smith Co., S. Morgan, York, Pa.
Tompkins, D. A., Co., Charlotte, N. C.
Valley Iron Works, Williamsport, Pa.
Westbrooks, J. B., Fdry. & Mch. Co., Danville, Va.
Wilks Foundry Co., Toledo, O.
Wood, R. D., & Co., Philadelphia, Pa.

Castings. (Malleable Iron and Steel.)
Chester Steel Castings Co., Chester, Pa.
Ross-Meehan Fdry. Co., Chattanooga, Tenn.
York Mfg. Co., York, Pa.

Castings. (Steel.)
Chester Steel Castings Co., Chester, Pa.
Diamond Drill & Machine Co., Birdsboro, Pa.

Ceilings. (Metal.)
Penn Metal Ceiling & Roofing Co., Phila., Pa.

Cement.
American Cement Co., Philadelphia, Pa.
Bird, W. M., & Co., Charleston, S. C.
Carolina Port. Cement Co., Charleston, S. C.
Cumber. Hyd. Cement & Mfg. Co., Cumberland, Md.
French, Samuel H., & Co., Philadelphia, Pa.
General Supply & Construction Co., New York, N. Y.
Gilbert, C. M., & Co., Savannah, Ga.
Hartranft Cement Co., Wm. G., Philadelphia, Pa.
Kelley Island Lime & Transport Co., Cleveland, O.
Maryland Cement Co., Baltimore, Md.
Maryland Lime & Cement Co., Balto., Md.
Mobile Coal Co., Mobile, Ala.
Southeastern Lime & C. Co., Charleston, S. C.
Warner Co., Chas., Wilmington, Del.

Cement Plant Designers.
Osborn Engineering Co., Cleveland, O.

Chain Hoists.
Speidel, J. G., Reading, Pa.

Chains.
Case Mfg. Co., Columbus, O.
Chilicott-Evans Chain Co., Allegheny, Pa.
Federal Mfg.Co., Diamond Chain Fcty., Indianap., Ind.
Greenwald Co., I. & E., Cincinnati, O.
Jeffrey Mfg. Co., The, Columbus, O.
Link-Belt Engineering Co., Philadelphia, Pa.
N. J. Foundry & Machine Co., New York, N. Y.

Chandeliers.
Electric Supply Co., Savannah, Ga.
Polacheck, Charles, & Bro., Milwaukee, Wis.

Charcoal. (Filtering.)
Obermayer Co., S., Cincinnati, O.

Checks. (Factory, Time and Merchandise.)
American Railway Supply Co., New York, N. Y.

Chemists.
Catlett, Chas., Staunton, Va.
Froehling & Robertson, Richmond, Va.
Pratt Laboratory, N. P., Atlanta, Ga.

Chloride of Calcium.
Carbondale Chemical Co., Carbondale, Pa.

Chucks.
Morse Twist Drill & Machine, Co., New Bedford, Mass.
Skinner Chuck Co., New Britain, Conn.
Whiton Machine Co., D. E., New London, Conn.

Clocks. (Watchman's and Town.)
Imhauser & Co., E., New York, N. Y.
Nanz, B., & Co., New York, N. Y.
Waggoner Watchman Clock Co., Grand Rapids, Mich.

Coal.
Alabama Con. Coal & Iron Co., Birmingham, Ala.
Castner, Curran & Bullitt, Philadelphia, Pa.
Crooked Fork Coal & Coke Co. Petros, Tenn.
Davis Coal & Coke Co., Philadelphia, Pa.
Main Jellico Mt. Coal Co., Kensee, Ky.
Mobile Coal Co., Mobile, Ala.
Niver, W. K., Coal Co., Baltimore, Md

Coal-Handling Machinery.
Aultman Co., Canton, O.
Bartlett, C. O., & Snow Co., Cleveland, O.
Hayward Co., New York, N. Y.
Hunt, Co., C. W., West New Brighton, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Engineering Co., Philadelphia, Pa.
Rawson & Morrison Mfg. Co., Cambgept., Boston. Mass.
Stuebner, G. L., Iron Works, Long Island City, N. Y.

Coal Tar Products.
Barrett Mfg. Co., Philadelphia, Pa.
Buchanan-Foster Co., Philadelphia, Pa.

Coke.
Alabama Con. Coal & Iron Co., Birmingham, Ala.
Crooked Fork Coal & Coke Co., Petros, Tenn.
Davis Coal & Coke Co., Philadelphia, Pa.

Compressed Air Locomotives. (See Locomotive Builders.)

Concentrating Plants.
Cresson Co., Geo. V., New York, N. Y.

Concrete Mixers.
Drake Standard Machine Works, Chicago, Ill
Ransome Concrete Mchy. Co., New York, N. Y.

Concrete Steel Construction.
Frink & Hazen, Baltimore, Md.
Ransome & Smith Co., New York, N. Y.

Condensers.
Alberger Condenser Co., New York, N. Y.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
McClave, Hamilton & Co., New York, N. Y.
Stilwell-Bierce & Smith-Vaile Co., Dayton, O.

Contractors. (Paving, etc.)
Robinson Contracting Co., Geo. A., Mobile, Ala.

Contractors and Builders.
Gilbreth, Frank B., Boston, Mass.
Speir, W. E., Washington, D. C.

Contractors' Machinery and Supplies. (See Hoisting Machinery.)
Aultman Co., Canton, O.
Austin Mfg. Co., Chicago, Ill.
Contractors' Plant Mfg. Co., Buffalo, N. Y.
Flory, S., Mfg. Co, Bangor, Pa.
Kilbourne & Jacobs Mfg. Co., Columbus, O.
Koppel, Arthur, New York, N. Y.
Males Co., The, Cincinnati, O.
Marion Steam Shovel Co., Marion, O.
Maxfield, H. E., & Co., New York, N. Y.
Moyer, J. W., & Co., Philadelphia, Pa.
Municipal Engineering & Contracting Co, Chicago, Ill.
N. J. Foundry & Machine Co., New York, N. Y.
Peacock Iron Works, Selma, Ala.
Sanford-Day Iron Works, Knoxville, Tenn

Conveying Machinery.
Aultman Co., Canton, O.
Bartlett C. O., & Snow Co., Cleveland, O.
Caldwell, H. W., & Son Co., Chicago, Ill.
Cresson Co., Geo. V., New York, N. Y.
Flory, S., Mfg. Co., Bangor, Pa.
Hayward Co., New York, N. Y.
Hunt Co., C. W., West New Brighton, N. Y.
Jeffrey Mfg. Co., The, Columbus, O.
Koppel, Arthur, New York, N. Y.
Lidgerwood Mfg. Co., New York, N. Y.
Link-Belt Engineering Co., Nicetown, Phila., Pa.
Maxfield, H. E., & Co., New York, N. Y.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
Moyer, J. W., & Co., Philadelphia, Pa.
N. J. Foundry & Machine Co., New York, N. Y.
Niles-Bement-Pond Co., Philadelphia, Pa.
Rawson & Morrison Mfg. Co., Cambgpt., Boston, Mass.
Robins Conveying Belt Co., New York, N. Y.

Cooling Towers.
Alberger Condenser Co., New York, N. Y.
Stocker, George J., St. Louis, Mo.

Copper.
Hiertz, Theo., Metal Co., St. Louis, Mo.
Ryan, J. J., & Co., Chicago, Ill.

Copper. (Sheet, Rod and Soldering.)
Waterbury Brass Co., New York, N. Y.

Coppersmiths.
Badger, E. B., & Sons Co., Boston, Mass.
Birmingham Boiler Works, Birmingham, Ala.
McMillan Bros. Co., Mobile, Ala.

Cordage.
American Mfg. Co., New York, N. Y.
Bailey, J. T., & Co., Philadelphia, Pa.
Columbian Cordage Co., Auburn, N. Y.

Cornices. (Metal.)
Chattanooga Roofing & Fdry. Co., Chattanooga, Tenn.

Corn-Mill Machinery.
Allis-Chalmers Co., Chicago, Ill.
Nordyke & Marmon Co., Indianapolis, Ind.
Foos Mfg. Co., Springfield, O.
Sprout, Waldron & Co., Muncy, Pa.
Starr, B. F., & Co., Baltimore, Md.
Wolf Co., Chambersburg, Pa.

Corrugated Iron.
Scaife, W. B., & Sons Co., Pittsburg, Pa.

Cotton Oil.
American Cotton Oil Co., New York, N. Y.
Cotton Oil & Fibre Co., Philadelphia, Pa.
Southern Cotton Oil Co., New York, N. Y.

Cotton Yarns. (Commission Merchants.)
Blythe, Richard A., Philadelphia, Pa.
Buckingham, Paulson & Co., Philadelphia, Pa.

Cotton-Gin Machinery.
Carver Cotton Gin Co., E. Bridgewater, Mass.
Continental Gin Co., Birmingham, Ala.
Gibbes, W. H., & Co., Columbia, S. C.
Tompkins, D. A., Co., Charlotte, N. C.
Valk & Murdoch Iron Works, Charleston, S. C.
Van Winkle Gin & Machine Works, E., Atlanta, Ga.

Cotton-Mill Machinery & Supplies.
American Supply Co., Providence, R. I.
Atherton Machine Co., A. T., Pawtucket, R. I.
Cohoes Iron Foundry & Machine Co., Cohoes, N. Y.
Draper Co., Hopedale, Mass.
Fairmount Machine Co., Philadelphia, Pa.
Kilburn, Lincoln & Co., Fall River, Mass.
Lowell Machine Shop, Boston, Mass.
Mason Machine Works, Taunton, Mass.
Robbins, O. A., Charlotte, N. C.
Ruth Automatic Knitting Machine Co., York, Pa.
Sherwood Bobbin & Mfg. Co., Greensboro, N. C.
Tompkins, D. A., Co., Charlotte, N. C.
Washburn, A. H., Charlotte, N. C.
Whitinsville Spin. Ring Co., Whitinsville, Mass.

Cottonseed-Oil Machinery.
American, Chicago, Ill.
Buckeye Iron & Brass Works, Dayton, Ohio.
Bushnell Press Co., G. H., Thompsonville, Ct.
Cardwell Machine Co., Richmond, Va.
Carver Cotton Gin Co., E. Bridgewater, Mass.
Continental Gin Co., Birmingham, Ala.
Foos Mfg. Co., Springfield, O.
Johnson, John, & Co., New York, N. Y.
Sprout, Waldron & Co., Muncy, Pa.
Stilwell-Bierce & Smith-Vaile Co., Dayton, Ohio.
Tompkins, D. A., Co., Charlotte, N. C.
Van Winkle Gin & Machine Works, E., Atlanta, Ga.

Cotton Seed Mchy. (Hullers, Separators, etc.)
Carver Cotton Gin Co., East Bridgewater, Mass.

Cottonseed Products.
American Cotton Oil Co., New York, N. Y.
Cotton Oil & Fibre Co., Philadelphia, Pa.
Southern Cotton Oil Co., New York, N. Y.

Counters. (Velocity.)
Tabor Mfg. Co., Philadelphia, Pa.

Covering. (Pipe and Boiler.)
Carey, Philip, Mfg. Co., Lockland, O.
Southern Pipe Covering Co., Richmond, Va.

Coverers. (Rollers and Clearers.)
American Supply Co., Providence, R. I.

Cranes. (Traveling, Hand, Power, Hydraulic.)
Case Manufacturing Co., The, Columbus, O.
Hayward Co., New York, N. Y.
Lane Mfg. Co., Montpelier, Vt.
Moyer, J. W., & Co., Philadelphia, Pa.
Niles-Bement-Pond Co., Philadelphia, Pa.
Pawling & Harnischfeger, Milwaukee, Wis.

Crankshafts.
Chester Steel Castings Co., Philadelphia, Pa.

Crayons.
Lowell Crayon Co., Lowell, Mass.

Creosoting Works.
International Creosoting & Cons. Co., Galveston, Tex
West Pascagoula Creosote Wks., W. Pascagoula, Miss.

Cross Arm Borers & Rounders.
Chattanooga Machinery Co., Chattanooga, Tenn.

Cross Arms and Pins.
Houston & Liggett, Lewisburg, Tenn.
International Creosoting & Const. Co., Galveston, Tex.

Cross Ties.
International Creosoting & Cons. Co., Galveston, Tex.

Crushing and Pulverizing Mchy.
Austin Mfg. Co., Chicago, Ill.
Bartlett, C. O., & Snow Co., Cleveland, O.
Bradley Pulverizer Co., Boston, Mass.
Brown Co., A. & F., New York, N. Y.
Cresson Co., Geo. V., New York, N. Y.
Foos Mfg. Co., Springfield, Ohio.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Simpson, J. S., & G. F., Brooklyn, N. Y.
Smidth, F. L., & Co., New York, N. Y.
Sprout, Waldron & Co., Muncy, Pa.
Sturtevant Mill Co., Boston, Mass.
Walker & Elliott, Wilmington, Del.

Crushers. (Corn and Cob.)
Brown Co., A. & F., New York, N. Y.
Foos Mfg. Co., The, Springfield, O.
Sprout, Waldron & Co., Muncy, Pa.
Wolf Co., The, Chambersburg, Pa.

Crusher Rings.
Latrobe Steel Co., Philadelphia, Pa.

Cupola Furnaces.
Obermayer, S., Co., Cincinnati, O.
Petroleum Iron Works Co., Washington, Pa.

Cutterheads. (Woodworking.)
Shimer, Samuel J., & Sons, Milton, Pa.
Smith, H. B., Machine Co., Smithville, N. J.

Dado Heads.
Huther Bros., Rochester, N. Y.

Designers and Illustrators.
Alpha Photo-Engraving Co., Baltimore, Md.
Baltimore-Maryland Engraving Co., Baltimore, Md.

Extract from the letter of a satisfied manufacturer to the author of his satisfaction

OUR LITERATURE:

Motors: Bulletin No. 629
Generators: Bulletin No. 630

Formerly our lighting bill for gas alone in our old plant was in the neighborhood of $150 per month during the winter months. We do not have a gas pipe in our new plant, and have taken everything of this description out of the old plant, so that we feel we have a saving also in the matter of electric light as well as having our plants much better lighted ....

Northern Electrical Mfg. Co.
Engineers Manufacturers
Madison, Wis., U. S. A.

51d

Established 1874.

The largest and most reliable Foundry Supply House in the world.

MANUFACTURERS

"Everything You Need in Your Foundry."

THE S. OBERMAYER CO.

CINCINNATI. CHICAGO. PITTSBURG.

MANUFACTURERS

High Grade Foundry Facings and Blackings.

IMPORTERS AND REFINERS

Ceylon Plumbago, Silver Lead, Graphite.

BUILDERS

MODERN FOUNDRY EQUIPMENT.

You get a correct card

Every Time

if you

Use The Crosby INDICATOR.

We have a booklet written for you—write for it.

Crosby Steam Gage & Valve Company,

Office and Works, BOSTON, MASS.

93-97 Oliver St., Boston, Mass. 78 John Street, New York.
21-23 Lake Street, Chicago. 147 Queen Victoria St., London.

ARCHITECTS, CIVIL ENGINEERS, MINING ENGINEERS, CHEMISTS, Etc.

FRANK P. MILBURN,
ARCHITECT
COLUMBIA, S. C.

Mills, Factories, Warehouses of Steel-Concrete Construction.
Plans prepared and estimates furnished by
W. B. UPTON CO., (Inc.)
Constructing Engineers,
Washington Loan & Trust Bldg., Washington, D. C.

W. B. SMITH WHALEY & CO.
Mill Engineers and Architects.
OFFICES—1328 Main Street, Columbia, S. C. and 1012 Tremont Building, Boston, Mass

C. A. M. PRARAY & CO.
Mill Architects and Engineers,
PROVIDENCE, R. I.

PAUL GASSER,
ARCHITECT.
Office Jackson Block,
TAMPA, FLORIDA.

E. C. WILEY, M. E.
Lynchburg, Va.
Plans prepared for the installation of lighting, heating and power plants.
Machine Design and Working Drawings a Specialty.

McMichael & Hunter,
ARCHITECTS,
CHARLOTTE, N. C.

WHEELER & RUNGE
ARCHITECTS,
Charlotte, N. C.

JOHN W. HAYS,
M. AM. SOC. C. E.
Civil Engineer,
WATER POWERS, WATER SUPPLY, SEWERAGE,
No. 3 S. Adams St., Petersburg, Va.

MITCHAM & BEACH,
Architects and Engineers, Camden, S. C.
Plans and Specifications prepared for all classes of construction.

O. H. SHEFFIELD & CO.,
Civil Engineers and Architects,
518 Austell Bldg., ATLANTA, GA.
Railways, Water Powers, Municipal, Public Works, Bridges and Buildings.

C. R. MAKEPEACE & CO.
Architects and Mill Engineers.
PROVIDENCE, R. I. Plans, Specifications and Estimates furnished for Cotton & Woolen Mills.

H. E. WHITE
ARCHITECT
ROCK HILL, S. C.

P. A. McCARTHY, C. E.
Civil and Consulting Engineer.
Late Ch. Eng., Eastern Texas R. R. M., Am. Ry. Eng. & M. of Way Ass'n.
Examinations and Reports; Power Plants, Bridges and Structures, Municipal Improvements, Water Supply, Sewerage and Irrigation, Electric Light Plants, Steam and Electric Railway Location and Construction.
Telephone 174. LUFKIN, TEXAS.

Jos. McWilliams & Co.
Engineers and Contractors.
Louisville, Ky.
Complete Installations for Factories, Institutions, Hotels and Large Buildings.
Steam Power Plants, Electric Street Railway, Power, Lighting and Factory Transmission Plants, Heating and Ventilating Apparatus, Ice-Making and Refrigerating Plants, Machinery and Supplies.

SHEDD & SARLE,
Civil Engineers.
146 Westminster St., Providence, R. I.
Development of Water Powers. Designs for Power Stations. Masonry Dams. Valuation of Water Powers. Water Supply. Sewerage.

LUDWIG & CO.
Consulting Engineers.
Specialty:
POWER PLANTS,
Steam, Electric, Hydraulic.
Condensers and Cooling Towers. 513 Empire Bldg. ATLANTA, GA.

JOHN BLAIR MacAFEE
The building and equipment of steam and electric railways, power plants and lighting systems.
Preliminary engineering with estimates.
Reports on properties in operation.
Harrison Bldg., PHILADELPHIA.

N. P. PRATT LABORATORY,
Fitten Building, ATLANTA, GA.
Assays and analyses of all natural and artificial products. Chemical and mining engineering.

FROEHLING & ROBERTSON,
Successors to DR. HENRY FROEHLING,
Analytical and Consulting Chemists.
Chemical and Mining Engineers.
17 South 12th St., RICHMOND, VA.
Analyses and assays of ores of every kind, and of all artificial products. Water analysis, mineral, sanitary and manufacturing, a specialty. Estimates promptly furnished. Geological and chemical investigation of mineral properties of the South.

John E. Ramsay & Co
ARCHITECTS.
Bell Block. SALISBURY, N. C.

ADAMS & SCHWAB,
Consulting Engineers.
Mem. Am. Soc. Mechanical Eng's.
Mem. Am. Soc. Ht'g and Ven. Eng's.
Heating and Ventilation Elevators, Sanitation, Steam, Power and Electric Lighting Plants for Private and Public Buildings.
1229-1233 Calvert Bldg., BALTIMORE, MD.

Established 1891. Cable Address, "Catlett."
CHARLES CATLETT,
Chemist and Geologist,
Formerly of the U. S. Geolog. Survey Lab.
Examination and Report on Developed and Undeveloped Properties.
Staunton, Va.
Long Distance Telephone Connection.

Telephone 1372 Broad.
P. C. BRENNAN,
Late Chief Engineer the Barber Asphalt Paving Co.
Asphalt reported on from the deposit to street.
Consulting and Mechanical Engineer
Asphalt Plants, Crusher Plants, Concrete Plants, Grinding Plants, Evaporation Tests, Supervision of Power Plants, Power Measured and Valves Adjusted.
General Designing and Complete Plants Contracted for and Capacity Guaranteed
Hydraulic Engineer, Heating Plants.
No. 1 Broadway, New York.
The "Brennan" Semi-Portable Paving Plants.

BARR & ELAM, Electrical Contractors.
Electric and Gas Supplies, Electric Bells, Burglar Alarms, &c.
GREENSBORO, NORTH CAROLINA.

BLUE PRINTS OF ALL KINDS CHEAP.
ALSO TRACINGS.
EWALD G. BLANKE,
213 St. Paul St., BALTIMORE, MD.

FRED GORDON SHAW,
ARCHITECT
AUGUSTA and COLUMBUS, GA.
FOR THE RESIDENCE, PUBLIC BUILDINGS And FACTORIES.
Special Attention to Heavy Constructions.

Surveys, Estimates, Specifications, Consultation, Reports, Superintendence, Inspection, Testing.

Myers, Finney & Morrison,
Associated Engineers.
CIVIL. ELECTRICAL. MECHANICAL.
E. D. T. Myers, Jr., John H. Finney. Hugh S. Morrison.
Mem. Am. So. C. E. As. Mb. A.I.E.E. Jun. Mb. A.S.M.E.
WASHINGTON, D. C. and RICHMOND, VA.
Bond Bldg. 1107½ E. Main St.

Electric Rwy., Power and Lighting Plants, ndustrial Plants, Factory Economics, Modernizing, Arbitration, BLUE PRINTS, all kinds.

Engineering Company of America,
74 Broadway, New York. 159 La Salle Street, Chicago.

Examinations and reports on any engineering specialty.

Plans for private and public buildings.

Plans of all descriptions, supervision of installation and investigation of the value of any engineering investment.

MEMBER AMERICAN SOCIETY MECHANICAL ENGINEERS. MEMBER AMERICAN INSTITUTE ELECTRICAL ENGINEERS.
JAMES B. SCOTT,
CONSULTING ENGINEER.
607-9 WEST END TRUST BLDG. PHILADELPHIA. 808-9 MARYLAND TRUST BLDG. BALTIMORE. 1109 COMMERCIAL CABLE BLDG NEW YORK.
REPORTS—Examinations and expert advice on the earning capacity, construction, operation and reorganization of public service properties.
SURVEYS—Projected railways and general practice.
PLANS AND SPECIFICATIONS—Complete electric railways, electric lighting systems, steam and hydraulic power plants, etc.
SUPERINTENDENCE—During construction. Supervision of operating departments.

STEEL FRAME MILL BUILDINGS, STEEL and IRON TANKS and VATS
OF EVERY DESCRIPTION

Scaife's Germ-Proof Water Filters,
10 to 10,000 gallons capacity per hour.
WM. B. SCAIFE & SONS CO.
(Founded 1802.)
PITTSBURG, PA.

FRANK B. GILBRETH,
General Contractor
For Mills, Power Stations, Office and Public Buildings, and Concrete Masonry.
Speed Work is Our Specialty.
BOSTON. NEW YORK. LONDON.

TURNTABLES

Bridges—Buildings—Structural Steel
VIRGINIA BRIDGE & IRON COMPANY
ROANOKE, VIRGINIA

Classified Index of Articles Advertised

For Alphabetical Index See Page 38

Desks.
Cushing Co., The, Baltimore, Md.
Dearborn Desk Co., Birmingham Ala.
Himmel, M. L., & Son, Baltimore, Md.

Dies for Sheet-Metal Workers.
Leffler, Chas., & Co., Brooklyn, N. Y.
Niagara Machine & Tool Works, Buffalo, N. Y.

Dipper Teeth, Lips, etc.
Taylor Iron & Steel Co., High Bridge, N. J.

Doors. (Steel Rolling.)
Kinnear Mfg. Co., Columbus, O.

Dredges and Excavators.
Hardie-Tynes Mfg. Co., Birmingham, Ala.
Hayward Co., New York, N. Y.
Males Co., Cincinnati, O.
Marion Steam Shovel Co., Marion, O.
Thew Automatic Shovel Co., Lorain, O.

Drills. (Pneumatic.) (See Drills, Rock & Mining.)

Drills. (Prospecting.)
American Diamond Rock Drill Co., New York, N. Y.
Crippen, H. D., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.

Drills. (Rock and Mining.)
American Diamond Rock Drill Co., New York, N. Y.
Crippen, H. D., New York, N. Y.
Ingersoll-Sergeant Drill Co., New York, N. Y.
McKiernan Drill Co., New York, N. Y.
Rand Drill Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.

Drills. (Twist.)
Barnes Co., W. F. & John, Rockford, Ill.
Morse Twist Drill & Machine Co., New Bedford, Mass.

Drill Presses.
Bailey-Lebby Co., Charleston, S. C.
Barnes Co., W. F., & John, Rockford, Ill.
Barr, H. G., Worcester, Mass.
Baush Machine Tool Co., Springfield, Mass.
Bickford Drill & Tool Co., The, Cincinnati, O.
Fosdick Machine Tool Co., Cincinnati, O.
Walke, Henry, Co., Norfolk, Va.

Drop Forgings.
Wilcox Mfg. Co., D., Mechanicsburg, Pa.

Dry-Docks.
Baltimore Shipbuilding & Dry Dock Co., Balto., Md.
Newport News Shipbldg. & D. D. Co., Newpt. News, Va.

Drying Machinery.
American Blower Co., Detroit, Mich.
Andrews & Johnson Co., Chicago, Ill.
Bailey-Lebby Co., The, Charleston, S. C.
Bartlett, C. O., & Snow Co., Cleveland, O.
Jeffrey Mfg. Co., The, Columbus, O.
Ruggles-Coles Engineering Co., New York, N. Y.
Sturtevant Co., B. F., Boston, Mass.

Dry-Kilns.
American Blower Co., Detroit, Mich.
Sturtevant Co., B. F., Boston, Mass.
Union Iron Works Co., Selma, Ala.

Dumbwaiters.
Speidel, J. G., Reading, Pa.

Dust-Collecting System.
Allington & Curtis Mfg. Co., Saginaw, E. S. Mich.
Dixie Mfg. Co., Baltimore, Md.

Dyeing Machinery.
Fairmount Machine Co., Philadelphia, Pa.

Dynamos and Motors.
Alexander, Jr., Co., S. B., Charlotte, N. C.
Commercial Electric Co., Indianapolis, Ind.
Crocker-Wheeler Co., Ampere, N. J.
Ewing-Merkle Electric Co., St. Louis, Mo.
Florida Electric Co., Jacksonville, Fla.
Electrical Material Co., Baltimore, Md.
General Electric Co., Schenectady, N. Y.
Guarantee Electric Co., Chicago, Ill.
Jonnson, Chas. F., Buffalo, N. Y.
Kentucky Electrical Co., Owensboro, Ky.
Northern Electrical Mfg. Co., Madison, Wis.
Piedmont Electric Co., Asheville, N. C.
Ridgway Dynamo & Engine Co., Ridgway, Pa.
Standard Electric Co., Norfolk, Va.
Triumph Electric Co., Cincinnati, O.
Westinghouse Elec. & Mfg. Co., Pittsburg, Pa.
Western Electrical Supply Co., St. Louis, Mo.

Educational Institutions.
University School for Boys, Baltimore, Md.

Ejectors.
Ohio Injector Co., Wadsworth, O.

Electric Contractors.
Alexander, Jr., S. B., Co., Charlotte, N. C.
Barr & Elam, Greensboro, N. C.
Electrical Material Co., Baltimore, Md.
Electric Supply Co., Savannah, Ga.
Ewing-Merkle Electric Co., St. Louis, Mo.
McWilliams, Jos., & Co., Louisville, Ky.
Northern Elec. Mfg. Co., Madison, Wis.
Standard Electric Co., Norfolk, Va.
Tompkins, D. A., Co., Charlotte, N. C.
Upton, W. B., Co., Washington, D. C.
Western Electrical Supply Co., St. Louis, Mo.

Electrical Instruments.
Electrical Material Co., BaltimoreMd.
Ewing-Merkle Electric Co., St. Lou is, Mo.
New York & Ohio Co., Warren,O.
Northern Electric Mfg. Co., Madison, Wis.
Piedmont Electric Co., Asheville, N. C.
Standard Electric Co., Norfolk, Va.
Western Electrical Supply Co., St. Louis, Mo.
Westinghouse Electric & Mfg. Co., Pittsburg, Pa.

Electric Mchy. (Generators, Motors, etc.)
Alexander, Jr., Co., S. B., Charlotte, N. C.
Commercial Electric Co., Indianapolis, Ind.
Crocker-Wheeler Co., Ampere, N. J.
Electrical Material Co., Baltimore, Md.
Electric Supply Co., Savannah, Ga.
Ewing-Merkle Electric Co., St. Louis, Mo.
General Electric Co., Schenectady, N. Y.
N. J. Foundry & Machine Co., New York, N. Y.
New York & Ohio Co., Warren, O.
Northern Electrical Mfg. Co., Madison, Wis.
Piedmont Electric Co., Asheville, N. C.
Ridgway Dynamo & Engine Co., Ridgway, Pa.
Scott, Jas. B., Baltimore, Md.
Standard Electric Co., Norfolk, Va.
Tompkins, D. A., Co., Charlotte, N. C.
Triumph Electric Co., Cincinnati, O.
Upton, W. B., Co., Washington, D. C.
Western Electrical Supply Co., St. Louis, Mo.
Westinghouse Elec. & Mfg. Co., Pittsburg, Pa.

Electric Railway Equipment.
Alexander, Jr., Co., S. B., Charlotte, N. C.
Electrical Material Co., Baltimore, Md.
Ewing-Merkle Electric Co., St. Louis, Mo.
General Electric Co., Schnectady, N. Y.
Northern Electrical Mfg. Co., Madison, Wis.
Standard Electric Co., Norfolk, Va.
Triumph Electric Co., Cincinnati, O.
Westinghouse Elec. & Mfg. Co., Pittsburg, Pa.
Western Electrical Supply Co., St. Louis, Mo.

Electrical Repairs.
Alexander, Jr., Co., S. B., Charlotte, N. C.
Electric Supply Co., Savannah, Ga.
Ewing-Merkle Electric Co., St. Louis, Mo.
Guarantee Electric Co., Savannah, Ga.
Kentucky Electrical Co., Owensboro, Ky.
Standard Electric Co., Norfolk, Va.
Western Electrical Supply Co., St. Louis, Mo.

Electrical Supplies.
Alexander, Jr., Co., S. B., Charlotte, N. C.
Barr & Elam, Greensboro, N. C.
Electrical Material Co., Baltimore, Md.
Electric Supply Co., Savannah, Ga.
Ewing-Merkle Electric Co., St. Louis, Mo.
Florida Electric Co., Jacksonville, Fla.
General Electric Co., Schenectady, N. Y.
Guarantee Electric Co., Chicago, Ill.
Kentucky Electrical Co., Owensboro, Ky.
New York & Ohio Co., Warren, O.
Northern Electrical Mfg. Co., Madison, Wis.
Piedmont Electric Co., Asheville, N. C.
Standard Electric Co., Norfolk, Va.
Sturtevant Co., B. F., Boston, Mass.
Triumph Electric Co., Cincinnati, O.
Western Electrical Supply Co., St. Louis, Mo.
Westinghouse Elec. & Mfg. Co., Pittsburg, Pa.

Electric Locomotives. (See Locomo. Bldrs.)

Electric Trucks.
Baldwin Locomotive Works, Philadelphia, Pa.

Electrotypers.
American Type Founders Co., Baltimore, Md.
Spencer & Hall, Baltimore, Md.

Elevators.
American Machine Co., Louisville, Ky.
Bartlett, C. O., & Snow Co., Cleveland, O.
Bates', James, Sons, Baltimore, Md.
Cohoes Iron Foundry & Machine Co., Cohoes, N. Y.
Fairmount Machine Co., Philadelphia, Pa.
Faunt Le Roy & Co., Baltimore, Md.
Florida Electric Co., Jacksonville, Fla.
Haven Elevator Co., Cincinnati, O.
Kinkade & Liggett, Columbus, O.
Link-Belt Engineering Co., Philadelphia, Pa.
Louisville Elevator Co., Louisville, Ky.
Maryland Foundry and Machine Co., Baltimore, Md.
Morse, Williams & Co., Philadelphia, Pa.
Otis Elevator Co., New York, N. Y.
Parkhurst Bros. & Co., Indianapolis, Ind.
Park Mfg. Co., Charlotte, N. C.
Plunger Elevator Co., Worcester, Mass.
Reedy, J. W., Elevator Mfg. Co., Chicago, Ill.
Speidel, J. G., Reading, Pa.
Westbrooks, J. B., Fdry. & Mch. Co., Danville, Va.

Elevator Buckets.
Caldwell, H. W., & Son Co., Chicago, Ill.
Greenwald Co., I. & E., Cincinnati, O.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Engineering Co., Philadelphia, Pa.
Taylor Iron & Steel Co., High Bridge, N. J.

Elevator Enclosures and Cabs.
Bolles, J. E., Iron & Wire Works, Detroit, Mich.
Buffalo Wire Works Co., Buffalo, N. Y.
Dufur & Co., Baltimore, Md.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.
Meyers Mfg. Co., The Fred J. Hamilton O.
Wisconsin Iron & Wire Works, Milwaukee, Wis.

Elevator Rope. [See Wire Rope.]

Emery.
Carborundum Co., The, Niagara Falls, N. Y.

Emery Wheels. [See Grinding and Polishing Machinery.]

Engineers. (Electric, Civil, Consulting, Contracting, Mechanical and Mining, etc.)
Adams & Schwab, Baltimore, Md.
Alber & Byrne, Birmingham, Ala.
Brennan, P. C., New York, N. Y.
Collier & Brown, Atlanta, Ga.
Crocker-Wheeler Co., Ampere, N. J.
Dyer, D. H., & Sons, Fall River, Mass.
Engineering Co. of America, New York, N. Y.
Florida Electric Co., Jacksonville, Fla.
Frink & Hazen, Baltimore, Md.
Force, John P., Columbus, Ohio.
Gilbreth, Frank B., Boston, Mass.
Hays, John W., Petersburg, Va.
Hutton Engineering Co., Lexington, Va.
Ludwig & Co., Atlanta, Ga.
MacAfee, Jno. Blair, Philadelphia, Pa.
McCarthy, P. A., Lufkin, Tex.
McWilliams, Jos., & Co., Louisville, Ky.
Mitcham & Beach, Camden, S. C.
Municipal Engineering & Contracting Co., Chicago, Ill.
Myers, Finney & Morrison, Richmond, Va.
Nicol, T. W., Mobile, Ala.
Northern Elec. Mfg. Co., Madison, Wis.
Osborn Engineering Co., Cleveland, O.
Pearson, R. P., Parson's W. Va.
Pratt Labratory, N. P., Atlanta, Ga.
Railways & Light Co. of America, Balto., Md.
Risdon-Alcott Turbine Co., Mount Holly, N. J.
Robinson Contracting Co., Geo. A., Mobile, Ala.
Scott, Jas. B., Baltimore, Md.
Shedd & Sarle, Providence, R. I.
Sheffield, O. H., & Co., Atlanta, Ga.
Smidth & Co., F. L., New York, N. Y.
Standard Electric Co., Norfolk, Va.
Tompkins, D. A., Co., Charlotte, N. C.
Upton, W. B., Co., Washington, D. C.
Virginia Bridge & Iron Co. Roanoke, Va.
Wiley, E. C., Lynchburg, Va.
Westinghouse, Church, Kerr & Co., Pittsburg, Pa.

Engines.
Alexander, Jr., Co., S. B., Charlotte, N. C.
Allis-Chalmers Co., Chicago, Ill.
Atlas Engine Works, Indianapolis, Ind.
Ball Engine Co., The, Erie, Pa.
Ball & Wood Co., New York, N. Y.
Bates Machine Co., Joliet, Ill.
Brown Corliss Eng Co., Corliss, Wis.
Brownell & Co., The, Dayton, O.
Cameron & Barkley Co., Charleston, S. C.
Chicago House Wrecking Co., Chicago, Ill.
Continental Gin Co., Birmingham, Ala.
Dunn Machinery Co., Atlanta, Ga.
Erie Pump & Engine Co., Erie, Pa.
Farquhar Co., A. B., Ltd., York, Pa.
Fishkill Landing Machine Co., Fishkill, N. Y.
Flory, S., Mfg. Co., Bangor, Pa.
Frick Co., Waynesboro, Pa.
Gibbes, W. H., & Co., Columbia, S. C.
Girard Machine & Tool Co., Philadelphia, Pa.
Greenwald Co., I. & E., Cincinnati, O.
Hardie-Tynes Mfg. Co., Birmingham, Ala.
Harrisburg Fdry. & Machine Wks., Harrisburg, Pa.
Hartfelder-Garbutt Co., Savannah, Ga.
Hill, Wm. E., & Co., Kalamazoo, Mich.
Houston, Stanwood & Gamble Co., Cincinnati, O.
Leffel, James, & Co., Springfield, O.
Lidgerwood Mfg. Co., New York, N. Y.
Lombard Iron Works & Supply Co., Augusta, Ga.
Maxfield, H. E., & Co., New York, N. Y.
McClave, Hamilton & Co., New York, N. Y.
Murray Iron Works Co., Burlington, Iowa.
Mecklenburg Iron Works, Charlotte, N. C.
Newport News Shipb'g & Dry Dock Co., N. News, Va.
Phoenix Iron Works Co., Meadville, Pa.
Ridgway Dynamo & Engine Co., Ridgway, Pa.
Savannah Locomotive & Car Works, Savannah, Ga.
Schofields, J. S., Sons Co., Macon, Ga.
Shaffer Boiler & Engine Mfg. Co., Baltimore, Md.
Shepherd Engineering Co., Franklin, Pa.
Smith-Courtney Co., Richmond, Va.
Southern Eng. & Boiler Works, Jackson, Tenn.
Southwark Foundry & Machine Co., Philadelphia, Pa
St. Louis Iron & Machine Works, St. Louis, Mo.
Strait, H. N., Mfg. Co., Kansas City, Kan.
Sturtevant Co., B. F., Boston, Mass
Tod, Wm., Co., Youngstown, O.
Tompkins, D. A., Co., Charlotte, N. C.
Union Iron Works Co., Selma, Ala.
Valk & Murdoch Iron Works, Charleston, S. C.
Valley Iron Works, Williamsport, Pa.
Vilter Mfg. Co., Milwaukee, Wis.
Walke, Henry, Co., Norfolk, Va.
Westinghouse, Church, Kerr & Co., Pittsburg, Pa.
Westinghouse Machine Co., Pittsburg, Pa.

Engines. (Gas, Gasoline and Kerosene.)
Blakeslee Mfg. Co., The, Birmingham, Ala.
Brown-Cochran Co., Lorain, O.
Capital Gas Engine Co., Indianapolis, Ind.
Columbus Machine Co., Columbus, O.
Dunn Machinery Co., Atlanta, Ga.
Elyria Engine Co., Elyria, O.
Fostoria Foundry & Machine Co., Cleveland, O.
Gibbes, W. H., & Co., Columbia, S. C.
Maxfield, H. E., & Co., New York, N. Y.
Otto Gas Engine Works, Philadelphia, Pa.
Watkins, Frank, M., Mfg. Co., Cincinnati, O.
Westinghouse, Church, Kerr & Co., Pittsburg, Pa.
Westinghouse Machine Co., Pittsburg, Pa.

Engines. (Hydraulic Pumping.)
Niagara Hydraulic Engine Co., Chester, Pa.

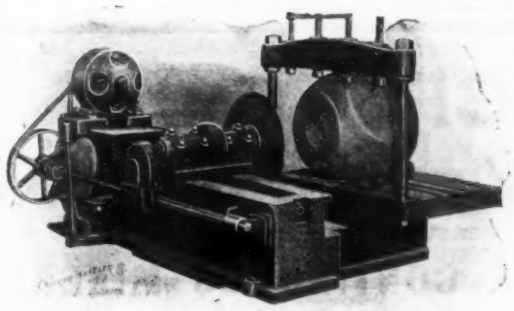
FUEL BURNING APPLIANCES.
ROCKWELL ENGINEERING CO.,
26 Cortlandt Street, New York.
OIL FURNACES FOR EVERY PURPOSE.

Concrete Steel Construction,
Ransome System.
FRINK & HAZEN,
CONSULTING AND CONTRACTING ENGINEERS,
711 Union Trust Building, Baltimore, Md.
Buildings——STEEL——Bridges.

GEO. W. KNOX, M. A. I. E. E. JAS. Z. GEORGE, A. M. A. I. E. E.; J. M. A. S. M. E.
KNOX, GEORGE & CO.
Consulting Engineers.
Design Build and Operate Electric Railway, Lighting and Power Transmission Systems; Gas Plants, Pumping Plants for Water Supply, Drainage and Irrigating Systems, etc.
OFFICES
Fisher Building, CHICAGO.
Tulane-Newcomb Building, NEW ORLEANS.

THE OSBORN ENGINEERING CO.
Osborn Bldg. Cleveland, O.
Consulting, Civil, Mechanical, Electrical and Mining Engineers.
BRIDGES—Steel, Concrete, Concrete-Steel, Stone—for Highways, Electric Railways, Railroads.
MANUFACTURING PLANTS—of All Kinds, Machine Shops, Foundries, Factories, Power Plants, Warehouses.
CEMENT PLANTS—Expert Examination of Property, Analyses and Tests of Materials, Sample Burnings, Plans, Specifications and Superintendence, New Plants ready for operation.
BITUMINOUS COAL PROPERTIES—Prospecting, Surveys, Reports, Plans, Specifications, New Plants.
INSPECTION. Structural Steel at Mills and Shops. CEMENT TESTING.

CHATTANOOGA ROOFING & FOUNDRY CO.
Formerly CHATTANOOGA STEEL ROOFING CO.
Manufacturers of all kinds of
ROOFING AND CASTINGS,
Store Fronts, Columns, Lintels, Sills,
GALVANIZED IRON WORK,
Awnings, Skylights and Cornice,
PATENT METAL SHINGLES, Tin and Galvanized.
All Styles Steel and Tin Roofing,
Drip Pans, Stove Pipe, Elbows, etc.
CHATTANOOGA, TENNESSEE.

Crocker - Wheeler Company,
AMPERE, N. J.
Branch Offices in all Principal Cities.

Actual tests have shown that an increase of 2¼% in tool output justifies the Motor Drive.
Our equipments increase output 25%.

JOHN P. FORCE,
Sanitary and Hydraulic Engineer.
Water Works, Sewerage and Sewage Disposal. Surveys, Estimates, Plans, Specifications and Reports. Construction Superintended.
41-42 Dispatch-Butler Block, COLUMBUS, O.

THE HUTTON ENGINEERING CO.
LEXINGTON, VA.
Consulting and Contracting
Electrical and Mechanical Engineers.
Central Stations Electric Railways, Steam and Power Plants.

ALBER & BYRNE, Members Eng. Assn. South.
Civil, Mechanical and Consulting Engineers.
Make surveys, Plans and specifications for railroads and bridges, water powers and cotton mills, city water works, electric light plants and sewerage, subdivisions of property, surveys and reports on mineral lands.
Map of Birmingham and vicinity for sale.
1909½ 1st Ave., Birmingham, Ala.

W. E. SPEIR,
Contractor and Builder,
Brick, Stone, Wood, Iron and Steel Construction.
Office, the Bliss Bldg., 35, 37 & 39 B St., N. W
WASHINGTON, D. C.

COLLIER & BROWN,
Electrical & Mechanical Engineers.
Engineering, Designing and Supervising of Steam, Electric and Hydraulic Plants.
Cotton Mill Construction a Specialty.
917-18-19 Empire Bldg., ATLANTA, GA.

HUGHES SPECIALTY WELL DRILLING CO.
Artesian and Oil Well Contractors
Wells drilled 3" to any diameter; 60' to 3000' deep. Satisfaction guaranteed.
Deep Well Pumping Plants Installed. Air Lift System a Specialty.
OFFICE AND WAREROOMS,
S. E. Cor. Ashley Ave. and Montague Street,
CHARLESTON, S. C.

The Geo. A. Robinson Contracting Company, Inc.,
General Contractors and Builders.
Mobile, Ala.

FOR INFORMATION ABOUT
U. S. MAIL CHUTES,
WHICH ARE
A NECESSITY IN OFFICE BUILDINGS AND HOTELS.
Write to the sole makers,
THE CUTLER MFG. CO., Rochester, N. Y.
PATENTED. AUTHORIZED.

Old Dominion Portland Cement.

WM. G. HARTRANFT CEMENT CO.

MANUFACTURED BY VIRGINIA PORTLAND CEMENT CO. CRAIGSVILLE, VA.

SOLE SELLING AGENT. Real Estate Trust Building. PHILADELPHIA, PA.

Carolina Portland Cement Co.

CHARLESTON, S. C. BIRMINGHAM, ALA.

Sole Selling Agents for North and South Carolina, Florida and Georgia. Lime, Rosendale Cement, Louisville Cement, Etc.

Full stocks of Portland Cement, Rosendale Cement and Plaster at Norfolk, Wilmington, Charleston and Savannah.

Maryland Lime & Cement Co.

217-219 Bowly's Whf. BALTIMORE, MD.

DISTRIBUTORS:—Lehigh Portland Cement—Rosendale Cement—Savage, Union, Somerset Fire Brick—Lime—Vitrified Salt-Glazed Sewer Pipe—Cal. Plaster—Limiod—Roofing Felts—Flue Linings—Chimney Tops, etc.

For Southern Work—

RIDGEMONT ROSENDALE CEMENT

Combines Lowest Cost with certainty of highest test and uniformity.

Works, IRONVILLE, Bedford Co., VA.

SOLE DISTRIBUTORS:

CAROLINA PORTLAND CEMENT CO.

Charleston, S. C.

RUGGLES-COLES

DRYERS

FOR

Phosphates, Slag, Coal, Marl, Clay, Etc.

RUGGLES-COLES ENGINEERING CO.

CHICAGO. NEW YORK.

LEHIGH Portland Cement

LEHIGH PORTLAND CEMENT

High Tensile Strength, Finely Ground, Light and Uniform in Color.

Southern and Western Distributors:

THE KELLEY ISLAND LIME & TRANSPORT CO.

CLEVELAND, OHIO.

NAZARETH CEMENT CO. CHARLES WARNER COMPANY NAZARETH PORTLAND CEMENT WORKS NAZARETH PENNA. OFFICES NEW YORK

SOVEREIGN CEMENT CHARLES WARNER COMPANY PORTLAND OFFICES PHILADELPHIA NEW YORK WILMINGTON DEL

ROYAL, MUNICIPAL, AMERICAN PORTLANDS.

Warner's Hydraulic, Warner's Improved Hydraulic, Lime, "Limoid" Plaster, Sewer Pipe, etc.

CHARLES WARNER COMPANY,

New York, Wilmington, Philadelphia.

CEMENTS

William M. Bird & Co.,

CHARLESTON, S. C.

Manufacturers' Agents for

American, Rosendale and Portland Cements and Importers of Best Brands of Foreign.

Full Stocks of

Oils, Paints and Builders' Supplies.

THE FINEST CEMENTS

LEHIGH PORTLAND CEMENT COMPANY LEHIGH PORTLAND CEMENT ALLENTOWN, PA.

Lehigh Brand

—

Dexter Brand

SOUTHEASTERN LIME & CEMENT CO.

Charleston, S. C.

Southern Distributors

DEXTER PORTLAND CEMENT CO. FINENESS STRENGTH TRADE MARK PORTLAND UNIFORMITY NAZARETH PA.

CUMBERLAND HYDRAULIC CEMENT

Equal to many

PORTLAND BRANDS.

The "Ne plus ultra" of Natural Hydraulic Cements.

Quadruple Grinding. CUMBERLAND HYDRAULIC CEMENT CUMBERLAND, MD. Initial Crushers, Ball and Tube Mills.

Recommended by Engineers, Specified by Architects, Accepted Standard for

EXCELLENCE, DURABILITY, STRENGTH.

The Cumberland Hyd. Cement & Mfg. Co.

P. O. Box 264. CUMBERLAND, MD.

THE OLD RELIABLE "Giant" Portland Cement,

Used exclusively on the NIAGARA FALLS TUNNEL and POWER HOUSE of the Niagara Falls Power Co. After five years the tunnel was recently inspected—32,400,000 cubic feet of water had rushed through every hour for five years. From one end of the tunnel to the other it was as strong as the day when it was finished. Not one of the 19,000,000 bricks used were out of place. The verdict was: "Practically absolutely perfect."

AMERICAN CEMENT CO.

22 S. 15th Street, Philadelphia, Pa.

Agencies:

LESLEY & TRINKLE CO. 22 S. 15th Street, Philadelphia, Pa.

UNITED BUILDING MATERIAL CO. 13-21 Park Row, New York. 101 Milk St., Boston, Mass.

The Powhatan Clay Mfg. Co.,

RICHMOND, VA.

White, Buff, Speckled, Gray, Red and Iron Spot Bricks.

In All Sizes and Shapes. FIRE BRICK.

IMPORTERS

PORTLAND CEMENT.

C. M. GILBERT & CO., SAVANNAH, GA.

THE OHIO FIRE BRICK CO.

OAK HILL, OHIO.

Manufacturers of

High - Grade Fire Brick

for Blast Furnaces.

Ask us for delivered prices.

CONCRETE— 2 Cents Per Yard

MEASURED AND MIXED BY

RANSOME CONTINUOUS MIXERS.

SEND FOR CIRCULAR C.

RANSOME CONCRETE MACHINERY CO.

Designers and Manufacturers of Concrete Machinery,

11 BROADWAY, NEW YORK CITY.

RANSOME'S

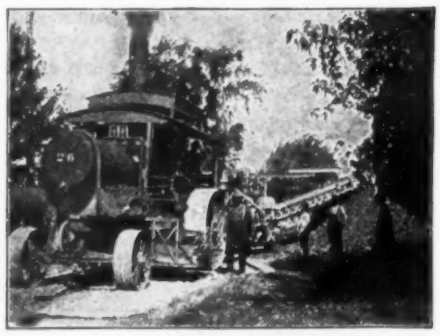
Concrete Steel Construction

For FACTORIES, WAREHOUSES, ETC. Detailed information promptly furnished.

RANSOME & SMITH CO., 11 Broadway New York.

CONSULTING CONCRETE ENGINEERS.

CONTRACTORS



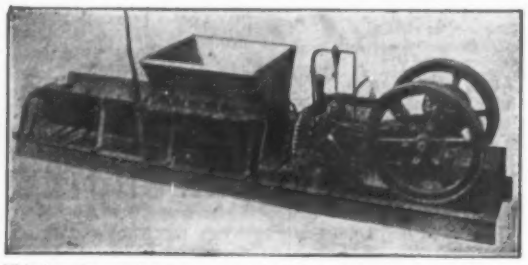
For the installation of **WATER WORKS** or **SEWER SYSTEMS,** ALSO **GAS AND OIL PIPE LINES.**

Will cooperate with RESPONSIBLE CONTRACTORS in any part of the country wishing to use our machinery on profit-sharing basis.

Machines Leased to Responsible Contractors.

MUNICIPAL ENGINEERING & CONTRACTING CO.

Offices, 1311 Manhattan Building, Chicago, Ill.



This is only one of 30 or more styles of machines that we make for different kinds of concrete work. 10 patents allowed, others pending.

The Greatest **Concrete Mixer** Yet Made.

Also Mortar and Asphalt Mixers.

Numbers of Patents.	
35,664	698,182
672,934	698,910
675,035	699,667
675,036	699,668
675,037	701,312

Write for our new **Catalogue M.**

DRAKE STANDARD MACHINE WORKS,

Factory, 7-9-11-13 Garden Street, Chicago.

Office and Salesroom, 298-300-302 W. Jackson Boul., CHICAGO, ILL., U. S. A.

Collecting Rents . . .

is a poor business when the rent or break comes in an expensive casting. It's usually a double loss—the machine to pay for—the work to hang up.

Wisconsin Graphite Iron Filler

has a Putty to fill rough, sand holed castings, a Semi-Paste for smoother surfaces, and a life-preserving paint for the flaw-free. All colors. Free samples.

Wisconsin Graphite Company,

PITTSBURG, PA.

Classified Index of Articles Advertised

For Alphabetical Index See Page 38.

Engravers.
Alpha Photo-Engraving Co., Baltimore, Md.
Baltimore-Maryland Engraving Co., Baltimore, Md.
Middleton, J. W., Chicago, Ill.

Excelsior Machines.
American Excelsior & Machine Co., Baltimore, Md.
Gibbes, W. H., & Co., Columbia, S. C.

Exhaust Heads.
Burt Mfg. Co., Akron, O.

Expansion Bolts.
N. J. Foundry & Machine Co., New York, N. Y.

Fans. (Electric.)
Electrical Material Co., Baltimore, Md.
General Electric Co., Schenectady, N. Y.
Westinghouse Electric & Mfg. Co., Pittsburg, Pa.

Fans. (Ventilating.) [See Blowers, Exhaust Fans.]

Feed-Water Heaters and Purifiers.
Bates Machine Co., Joliet, Ill.
Gibbes, W. H., & Co., Columbia, S. C.
Green Fuel Economizer Co., Matteawan, N. Y.
Greenwald Co., I. & E., Cincinnati, O.
Kelley, Benj. F., & Son, New York, N. Y.
McAdoo Thomas, Philadelphia, Pa.
National Pipe Bending Co., New Haven, Conn.
Petroleum Iron Works Co., Washington, Pa.
Scaife, Wm. B., & Sons, Co., Pittsburg, Pa.
Stilwell-Bierce & Smith-Vaile Co., Dayton, O.
Webster & Co., Warren, Camden, N. J.

Felting. (Hair.)
Baeder, Adamson & Co., Philadelphia, Pa.

Fencing. (Iron, Steel, Wire.)
Bolles Iron & Wire Works, J. E., Detroit, Mich.
Buffalo Wire Works Co., Buffalo, N. Y.
Dufur & Co., Baltimore, Md.
Eureka Supply Co., Chattanooga, Tenn.
Ludlow-Saylor Wire Co., St. Louis, Mo.
New Jersey Wire Cloth Co., Trenton, N. J.
Wisconsin Iron & Wire Works, Milwaukee, Wis.

Fertilizer Machinery. [See Phosphate Mchy.]

Files.
Barnett Co., G. & H., Philadelphia, Pa.
Miller Oil & Supply Co., Indianapolis, Ind.
Nicholson File Co., Providence, R. I.

Filler. (Iron.)
Obeymayer, S., Co., Cincinnati, O.
Wisconsin Graphite Co., Pittsburg, Pa.

Filters. (Water.)
Scaife, Wm. B., & Sons, Co., Pittsburg, Pa.

Filters. (Oil.)
Burt Mfg. Co., The, Akron, O.
Maxfield, H. E., & Co., New York, N. Y.

Filter Presses.
Johnson, J., & Co., New York, N. Y.
Stilwell-Bierce & Smith-Vaile Co., Dayton, O.

Fire-Brick.
Georgia Vitrified Brick & Clay Co., Augusta, Ga.
Maryland Lime & Cement Co., Balto., Md.
Obermayer Co., S., Cincinnati, O.
Ohio Fire-Brick Co., Oak Hill, O.
Pomona Terra Cotta Co., Pomona, N. C.
Powhatan Clay Mfg. Co., Richmond, Va.
Stevens', H., Sons Co., Macon, Ga.

Fire Extinguishers.
Badger Fire Extinguisher Co., Boston, Mass.
General Fire Extinguisher Co., Providence, R. I.

Fire Escapes.
Bolles Iron & Wire Works, J. E., Detroit, Mich.

Flooring. (Hardwood.)
Adams, J. M., Baltimore, Md.
Forman, Thomas, Co., Detroit, Mich.
Smith, J. Summerfield, & Co., Balto., Md.
Wilce Co., The T., Chicago, Ill.

Flour and Grist Mill Machinery and Supplies.
Allis-Chalmers Co., Chicago, Ill.
Bartlett, C. O., & Snow Co., Cleveland, O.
Caldwell, H. W., & Son Co., Chicago, Ill.
DeLoach Mill Mfg. Co., Atlanta, Ga.
Gibbes, W. H., & Co., Columbia, S. C.
Nordyke & Marmon Co., Indianapolis, Ind.
Sprout, Waldron, & Co., Muncy, Pa.
Starr, B. F., & Co., Baltimore, Md.
Wolf Co., Chambersburg, Pa.

Flue Scrapers. (For Boilers.)
Gem Mfg. Co., Pittsburg, Pa.

Forges.
Sturtevant Co., B. F., Boston, Mass.

Foundry Equipment and Supplies.
Obermayer Co., S., Cincinnati, O.

Friction Clutches.
Brown, A. & F., New York, N. Y.
Coil Clutch Mfg. Co., New York N. Y.

Fuel Economizer.
Green Fuel Economizer Co., Matteawan, N. Y.

Fuel Oil Equipment.
Petroleum Iron Works Co., Washington, Pa.
Rockwell Engineering Co., New York, N. Y.

Furnace Builders.
Kennedy, Walter, Pittsburg, Pa.
Means & Fulton Iron Works, Birmingham, Ala.

Furnaces. (Metallurgical.)
Rockwell Engineering Co., New York, N. Y.

Gages (Recording) and Counters.
Amer. Steam Gauge & Valve Mfg. Co., Boston, Mass.
Crosby Steam Gage & Valve Co., Boston, Mass.

Galvanized Sheets.
American Sheet Steel Co., New York, N. Y.
Bourne-Fuller Co., Cleveland, O.

Gas Compressors.
Brown-Cochran Co., Lorain, O.

Gas Meters.
Pittsburg Meter Co., E. Pittsburg, Pa.

Gas Producers.
Wood, R. D., & Co., Philadelphia, Pa.

Gas and Steam Fitters' Tools.
Saunders' Sons, D., Yonkers, N. Y.
Simmons, John, Co., New York City.

Gaskets.
Boston Belting Co., Boston, Mass.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Peerless Rubber Mfg. Co., New York, N. Y.
Voorhees Mfg. Co., Jersey City, N. J.

Gear Cutting Machines.
Whiton Machine Co., D. E., New London, Conn.

Gears and Pinions. (Raw Hide.)
National Rawhide & Belting Co., Niles, Mich.

Gearing.
Brown, A. & F., Co., New York, N. Y.
Caldwell, H. W., & Son Co., Chicago, Ill
Case Mfg. Co., Columbus, O.
Chester Steel Casting Co., Philadelphia, Pa.
Fairmount Machine Co., Philadelphia, Pa.
Jeffrey Mfg. Co., The, Columbus, O.
Greenwald Co., I. & E. Cincinnati, O.
Link-Belt Engineering Co., Philadelphia, Pa.
Nordyke & Marmon Co., Indianapolis, Ind.
Taylor Iron & Steel Co., High Bridge, N. J.
Tompkins, D. A., Co., Charlotte, N. C.
Woods, T. B., Sons, Chambersburg, Pa.

Geologist.
Catlett, Chas., Staunton, Va.
Froehling & Robertson, Richmond, Va.

Governor. (Water Wheel.)
Replogle Governor Works, Akron, Ohio.

Graphite.
Detroit Graphite Mfg. Co., Detroit, Mich.
Dixon Crucible Co., Jos., Jersey City, N. J.
Internat'l Acheson Graphite Co., Niagara Falls, N. Y.
Obermayer, S., Co., Cincinnati, O.
Wisconsin Graphite Co., Pittsburg, Pa.

Grates and Grate Bars.
McClave-Brooks Co., Scranton, Pa.
Miller Oil & Supply Co., Indianapolis, Ind.
Sanford-Day Iron Works, Knoxville, Tenn.

Grain Elevator Supplies.
Caldwell, H. W., & Son Co., Chicago, Ill.
Case Mfg. Co., Columbus, O.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Engineering Co., Nicetown, (Phila.) Pa.

Grease. (Lubricating.)
Cook's Sons, Adam, New York, N. Y.
Robinson, Wm. C., & Son, Baltimore, Md.

Grinding and Polishing Machinery.
Abrasive Material Co., The, Philadelphia, Pa.
Carborundum Co., The, Niagara Falls, N. Y.
Monarch Emery & Cor'dum Wheel Co., Camden, N.J.
Norton Emery Wheel Co., Worcester, Mass.
Vitrified Wheel Co., Westfield, Mass.

Groovers.
Huther Bros., Rochester, N. Y.
Smith, H. B., Machine Co., Smithville, N. J.

Gunpowder.
Peters Cartridge Co., Cincinnati, O.

Hammers. (Steam, Power, Pneumatic.)
Rand Drill Co., New York, N. Y.
Robinson, J. M., Mfg. Co., Cincinnati, O.
Savannah Locomotive & Car Works, Savannah, Ga.

Handle Mchy. [See Woodworking Mchy.]
Fay, J. A., & Egan Co., Cincinnati, O.
Leland, F. W., Jasper, Tenn.
Root, B. M., York, Pa.
Trevor Mfg. Co., Lockport, N. Y.

Hardware Specialties.
Wrightsville Hardware Co., Wrightsville, Pa.

Hay Tools.
Myers & Bro., F. E., Ashland, O.

Heating Apparatus.
American Blower Co., Detroit, Mich.
Andrews & Johnson Co., Chicago, Ill.
Boston Blower Co., Hyde-Park, Mass.
Dixie Mfg. Co., Baltimore, Md.
Dowman-Dozier Mfg. Co., Atlanta, Ga.
Monitor Steam Generator Mfg. Co., Baltimore, Md.
Peck-Hammond Co., The, Cincinnati, O.
Sturtevant Co., B. F., Boston, Mass.
Webster, Warren Co., Camden, N. J.

Hoisting Machinery.
Austin Mfg. Co., Chicago, Ill.
Byers Machine Co., John F., Ravenna, O.
Case Manufacturing Co., The, Columbus, O.
Contractors' Plant Mfg. Co., Buffalo, N. Y.
Flory, S. Mfg. Co., Bangor, Pa.
Hardie-Tynes Mfg. Co., Birmingham, Ala.
Hayward Co., New York, N. Y.
Hunt Co., C. W., West New Brighton, N. Y.
Jeffrey Mfg. Co., The, Columbus, O.
Koppel, Arthur, New York, N. Y.
Link-Belt Engineering Co., Philadelphia, Pa
Lidgerwood Mfg. Co., New York, N. Y.
Males Co., The, Cincinnati, O.
Maxfield, H. E., & Co., New York, N. Y.
Moyer, J. W., & Co., Philadelphia, Pa.
Rawson & Morrison Mfg. Co., Cambgept., Boston, Mass.
Sprague Canning Machinery Co., Chicago, Ill.
Sullivan Machinery Co., Chicago, Ill.

Hoists. (Electric.)
Pawling & Harnischfeger, Milwaukee, Wis.

Hoists. (Pneumatic, Motor.)
Rand Drill Co., New York, N. Y.

Horse Shoes.
Old Dominion Iron & Nail Works Co., Richmond, Va.
The Diamond State Steel Co., Wilmington, Del.

Hose.
Boston Belting Co., Boston, Mass.
Eureka Fire Hose Co., New York, N. Y.
N. J. Car Spring & Rub. Co., Jersey City, N. J.
Peerless Rubber Mfg. Co., New York, N. Y.
Voorhees Rubber Mfg. Co., Jersey City, N. J.

Hotels.
New St. Charles Hotel, New Orleans, La.

Hydrants.
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
Ludlow Valve Mfg. Co., Troy, N. Y.
Wood, R. D., & Co., Philadelphia, Pa.

Hydraulic Machinery.
American, Chicago, Ill.
Watson-Stillman Co., New York, N. Y.
Wood, R. D., & Co., Philadelphia, Pa.

Hydraulic Rams.
Niagara Hydraulic Engine Co., Chester, Pa.

Ice-Making Machinery & Supplies.
Arctic Mch. Co., Canton, Ohio.
Barber Mfg. Co., A. H., Chicago, Ill.
Brown-Cochran Co., Lorain, O.
Frick Co., Waynesboro, Pa.
Healy Ice Machine Co., Chicago, Ill.
McWilliams, Jos., & Co., Louisville, Ky.
Remington Machine Co., Wilmington, Del.
Stilwell-Bierce & Smith-Vaile Co., Dayton, O
Vilter Mfg. Co., Milwaukee, Wis.
Wolf Co., The Fred. W., Chicago, Ill.
York Mfg. Co., York, Pa.

Incorporators. (Companies.)
Delaware Corporation Co., Wilmington, Del.
Delaware Trust Co., Wilmington, Del.
District of Columbia Charter Co., Washington D. C.

Indicators. (Steam Engines.)
Amer. Stm. Gauge & Valve Mfg. Co., Jam. Plain, Mass.
Crosby Steam Gauge & Valve Co., Boston, Mass.
Scranton Steam Pump Co., Scranton, Pa.

Industrial Opportunities.
Anderson, T. J., Gen'l Pass. Agt., Houston, Tex.
Athens Chamber of Commerce, Athens, Ga.
Brinkley Business Men's League, Brinkley, Ark.
Fort Worth Board of Trade, Fort Worth, Tex.
Lynchburg Traction & Light Co., Lynchburg, Va.
Lafourche Progressive Union, Thibodaux, La.
Old Dominion Land Co., Newport News, Va
Rayne, La., C. W. Lyman, Secretary Progressive Union.
Richards, M. V., L. & T. Agent, Washington, D. C.
Southern Pacific Houston, Tex.
Seaboard Air Line, Portsmouth, Va.
Sutherland, Howard, Land Agent, Elkins, W. Va.

Industrial Railways.
Hunt Co., C. W., West New Brighton, N. Y.
Koppel, Arthur, New York City.

Injectors.
Jenkins Bros., New York, N. Y.
Lunkenheimer Co., Cincinnati, O.
Ohio Injector Co., Wadsworth, O.
Penberthy Injector Co., Detroit, Mich.
Schofields, J. S., Sons, Co., Macon, Ga.
Simmons, John, Co., New York, N. Y.

Insulated Wire.
Electrical Material Co., Baltimore, Md.
Hazard Manufacturing Co., Wilkes Barre, Pa.

Insulators. (Glass.)
Electrical Material Co., Baltimore, Md.

Insulator Pins.
Electrical Material Co., Baltimore, Md.
Houston & Liggett, Lewisburg, Tenn.

Insulator Pin Machinery.
Chattanooga Machinery Co., Chattanooga, Tenn.

Insurance.
Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
Maryland Casualty Co., Baltimore, Md.

Iron.
Alabama Consol. Coal & Iron Co., Birmingham, Ala.
American Sheet Steel Co., New York, N. Y.
Bourne-Fuller Co., Cleveland, O.
Old Dominion Iron & Nail Works Co., Richmond, Va.

Iron Brokers.
Armstrong, R. S. & Bro., Atlanta, Ga.
Cox, Jr., Justice, & Co., Inc., Philadelphia, Pa.
Males Co., Cincinnati, O.

Jacks. (Lifting, Track and Oil Well.)
Watson-Stillman Co., New York, N. Y.

Kettles. (Steam Jacket.)
Badger, E. B., & Sons Co., Boston, Mass.
Petroleum Iron Works Co., Washington, Pa.

Knife Grinders. (New Automatic.)
Fay, J. A., & Egan Co., Cincinnati, O.
Smith, H. B., Machine Co., Smithville, N. J.

BAGS

Made from Cotton and Burlap, for every known purpose.

Importers of all widths and grades

BURLAP

TWINE

All sizes and all grades made from best selected Fibres.

ROPE

GOLD MEDAL, "NORTON" PARIS, 1900.

EMERY WHEELS

Walker Universal Tool and Cutter Grinder.

NORTON EMERY WHEEL CO.,
WORCESTER, MASS.

CAREY MCHY. & SUPPLY CO., Agts., Baltimore, Md. CHICAGO STORE—25 So. Canal St.

DEXTER
PORTLAND CEMENT.

HIGHEST ATTAINABLE STANDARD

Samuel H. French & Co., Sole Agents,

Established 1844. Philadelphia.

MARYLAND CEMENT CO.

MANUFACTURERS OF

Highest Grade Portland Cement.

OFFICE: Builders' Exchange, Baltimore, Md.

WORKS: Sparrows Point, Maryland.

The L. SCHREIBER & SONS CO.

Designers Builders of Steel Buildings.

Structural Steel, Ornamental Iron,

CINCINNATI, OHIO.

BOOK OF DESIGNS

OF PLAIN AND INLAID

HARDWOOD FLOORS

is yours for the asking. Then, if you will send measures of rooms, an estimate, either on flooring or floors laid and finished, will be sent promptly.

The work is made in several thicknesses adapted for use in new or old houses.

Many references can be given showing the thoroughness of our work in our particular field—Baltimore, Washington, Richmond and the SOUTH.

J. M. ADAMS,

227 N. CHARLES STREET. BALTIMORE, MD.

HARMON S. PALMER'S METHOD OF

CONCRETE BUILDING.

A PERFECT SYSTEM OF CONSTRUCTION, by the use of Hollow Concrete Building Blocks, produced by hand labor with new scientific and geometrically constructed machines, which pre-determine the building. Obviates cutting the stone and fitting the frame, does away with the steel square and effectually supersedes all methods by its wonderful simplicity.

FOR YOUR OWN PROTECTION

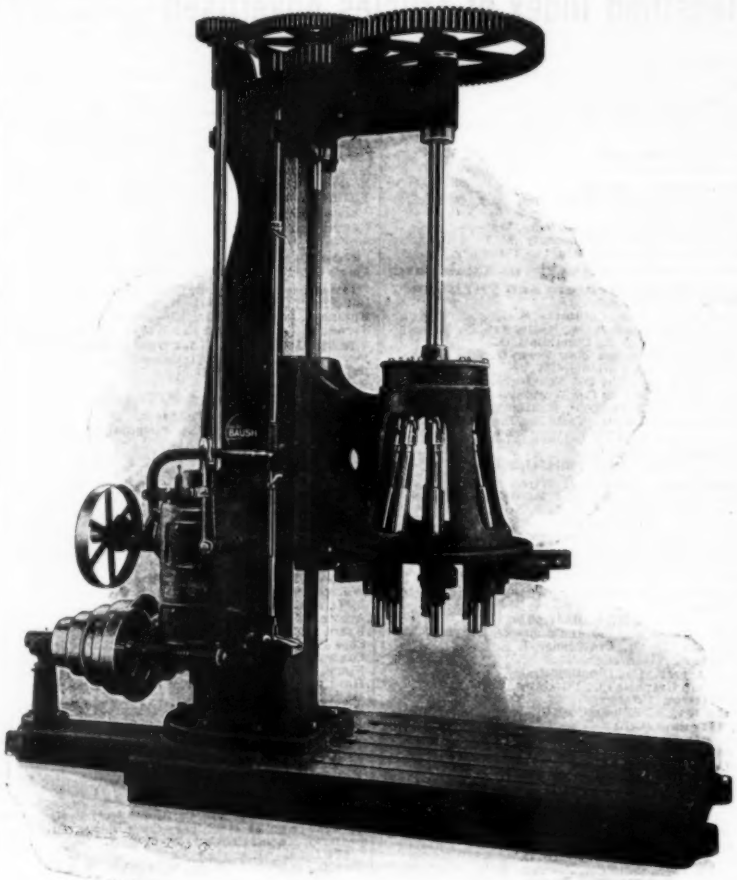
send postal card for FREE BOOKLET of patent claims relating to HOLLOW CONCRETE BUILDING BLOCKS and machines for their manufacture, to the HARMON S. PALMER HOLLOW CONCRETE BUILDING BLOCK COMPANY, 1401 Binney Street, Washington, D. C., owners of patents; or one dollar for FULL COPIES, including DRAWINGS AND SPECIFICATIONS in bound form, thirty-five pages, 8x11 inches. Beware of infringements, several suits already filed.

NEW PATENTS. ADJUSTABLE MACHINES.

Railroad, Wharf and Boat Spikes, Machine, Common Carriage and Track Bolts.
Cold Punched Nuts, Railway Joints, Merchant Bars, Rivets, Etc.

The Diamond State Steel Co.

Wilmington, Del.



BAUSH

Multiple Spindle Drills

are a great saving to manufacturers of Valves, Cylinders, Steam Chests, Pipes, Pipe Flanges, and to other manufacturers having numerous drilling operations.

You can drive a large number of holes at one time as quickly as you now drill one.

They feed, stop and return automatically.

WRITE FOR CATALOGUE.

BAUSH MACHINE TOOL CO.

SPRINGFIELD, MASS.

CARY SPRING WORKS,

240 & 242 West 29th St., NEW YORK, U. S. A.

WIRE SPRINGS

MANUFACTURERS ALL KINDS OF Round and Flat WIRE, Tempered and Untempered.

SPRINGS For Machinery, Rolling Shutters, Motors, etc.

OF EVERY DESCRIPTION.

Telephone, 3346—38th St.

MUSIC BOX AND FINE SPRINGS

OUR SPECIALTY.

Classified Index of Articles Advertised

For Alphabetical Index See Page 38

Knitting Machinery.
Campbell & Clute Machine Co., Cohoes, N. Y.
Mayo Knit. Mch. & Needle Co., Franklin Falls, N. H
McMichael & Wildman Mfg. Co., Norristown, Pa.
Nye & Tredick Co., Philadelphia, Pa.
Scott & Williams, Philadelphia, Pa.

Lamps.
Wells Light Mfg. Co., New York, N. Y.

Lamps. (Arc and Incandescent.)
Alexander, Jr., Co., S. B., Charlotte, N. C.
Electrical Material Co., Baltimore, Md.
Electric Supply Co., Savannah, Ga.
General Electric Co., Schenectady, N. Y.
Kentucky Electrical Co., Owensboro, Ky.
New York & Ohio Co., Warren, O.
Piedmont Electric Co., Asheville, N. C.
Shelby Electric Co , shelby, O.
Standard Electric Co., Norfolk, Va.
Westinghouse Electric & Mfg. Co., Pittsburg, Pa.

Lamp Adjuster. (Incandescent.)
Incandescent Elec. Lgt. Manipulator Co., Boston, Mass.

Lamp Replacer. (Incandescent.)
Incandescent Elec. Lgt. Manipulator Co., Boston. Mass.

Lamp Shades & Guards. (Incandescent.)
Incandescent Elec. Lgt. Manipulater Co., Boston, Mass.

Lands.
Abbott, F. C., & Co., Charlotte. N. C.
Anderson, T. J., Gen'l Pass. Agt., Houston, Tex.
Brobston, Fendig & Co., Brunswick, Ga.
Clark. Chas. E., Augusta, Ga.
Martin & Bro., Augusta, Ga.
Richards, M. V., Land & Industrial Agt., Wash., D. C.
Sutherland, Howard, Land Agent, Elkins, W. Va.
Watson. R. E., Atlanta, Ga.

Lathes. (Engine.)
Barnes, W. F., & J., Co., Rockford, Ill.
Robinson, W. C., & Son, Co., Baltimore, Md,
Gibbes, W. H., & Co., Columbia, S. C.
McCabe, J. J., New York, N. Y.
Savannah Loco. Works & Supply Co., Savannah, Ga.
Schumacher & Boye, Cincinnati, O.
Walke, Henry, Co., Norfolk, Va.

Laundry Machinery.
Adams Laundry Machinery Co., Troy, N. Y.
Dawson, A. L., & Co., Chicago, Ill.
Sinclair Co., S. H., Chicago, Ill.
Wilson Laundry Machinery Co. Columbia, Pa.

Lead. (Sheet.)
Robertson Mfg. Co., James, Baltimore, Md.

Lead and Tin. (Pig.)
Hiertz, Theo., Metal Co., St. Louis, Mo.
Ryan & Co., J. J., Chicago, Ill.

Letters. (Foundrymen & Pattern Makers.)
Brim, A. W., Seneca Falls, N Y.

Lime.
Carolina Portland Cement Co., Charleston, S. C.
Maryland Lime & Cement Co., Balto., Md.
Warner, Charles Co., Wilmington Del.

Locomotive Builders.
American Locomotive Co., New York, N. Y.
Baldwin Locomotive Works, Philadelphia, Pa.
Byers, Jno. F., Mch. Co., Ravenna, O.
Climax Mfg. Co., Corry, Pa.
Low, Edgar S., Co., Pittsburg, Pa.
Males Co., Cincinnati, O.
Porter. H. K., Co., Pittsburg, Pa.

Loom Harness.
American Supply Co., Providence, R. I.

Looms and Weaving Machinery.
American Supply Co., Providence, R. I.
Draper Co., Hopedale, Mass.
Fairmount Machine Co., Philadelphia, Pa.
Kilburn, Lincoln & Co., Fall River, Mass.
Lowell Machine Shop, Boston, Mass.
Mason Machine Works. Taunton, Mass.
Tompkins, D. A., Co., Charlotte, N. C.

Lubricating Compounds.
Robinson, Wm. C., & Sons Co., Baltimore, Md.
Cook's. Adam, Sons, New York, N. Y.

Lubricators and Oil Cups.
Cook's Sons, Adam, New York, N. Y.
Crosby Steam Gage & Valve Co., Boston, Mass.
Detroit Lubricator Co., Detroit. Mich.
Lunkenheimer Co., Cincinnati, O.
Penberthy Injector Co., Detroit, Mich.

Lumber.
Kirby Lumber Co., Houston, Tex.
Price & Heald, Baltimore, Md.
Red Cypress Lumber Co., Macon, Ga.
Stetson Lumber Co., Macon, Ga.

Machinery. (Special.)
Eclipse Mch. Co., Chicago, Ill.
Leffler, Charles, & Co., Brooklyn, N. Y.
Moshannon Mfg. Co., Philipsburg, Pa.
Boyersford Foundry & Machine Co., Royersford, Pa.

Machinery and Tools. (New & Sec'd-hand)
Affleck, Geo. E., New York, N. Y.
American, Chicago, Ill.
American Elec. Supply & Mfg. Co., New York, N. Y.
Armstrong, R. S., & Bro., Atlanta, Ga.
Baird Machinery Co., Pittsburg, Pa.
Baker, H. C., & Co., Philadelphia, Pa.
Bennett. G. L., New York, N. Y.
Bissell, F., Co., Toledo, O.
Bowen & Street Equipment Co., Norfolk, Va.
Braden, Jas. S., New York, N. Y.
Brown & Zortman Machinery Co., Pittsburg, Pa.
Caine & Plitt, Philadelphia, Pa.
Carlin Mchy. & Supply Co., Allegheny, Pa.
Casey, D. L., Mch. Co., Springfield, O.
Chicago House Wrecking Co., Chicago, Ill.
Cleveland Belting & Machinery Co., Cleveland, O.
Clyde Mch. Works, Chicago, Ill.
Columbia Supply Co., Columbia, S. C.
Columbus Iron & Steel Co., Columbus, O.
Contractors' Equipment Co., Philadelphia, Pa.
Contractors' Supply & Equipment Co , Chicago, Ill.
Cox, Justice, Jr., & Co., Ltd., Philadelphia, Pa
Davis, W. F., Birmingham. Ala.
Driscoll, John T., & Co., Chicago, Ill
Ellis, J. L., Co., Oklahoma City, Okla.
Fidelity Machine & Metal Co., Philadelphia, Pa.
Girard Machine & Tool Co., Philadelphia, Pa.
Hartfelder-Garbutt Co., Savannah Ga.
Hitner's, H. A., Sons, Philadelphia, Pa.
Huntington Machinery & Supply Co., Wilkesbarre, Pa.
Kaiser, A. V. & Co., Philadelphia. Pa
Kennedy, L. E., & Co., New York, N. Y.
Kohn, J. W., & Co., Cleveland, O.
Lehman, Charles T., Birmingham, Ala.
Lodge & Shipley Mch. Tool Co., Cincinnati, Ohio.
Lucas, J. C. M., Baltimore, Md.
Mallory, J. D., Baltimore, Md.
Mengel's Machinery Exchange, Baltimore, Md.
Poulterer & Co., Philadelphia. Pa.
Price Machinery Co., Chicago, Ill.
Rossiter, MacGovern & Co., New York, N. Y.
Saxton, J. C., New York, N. Y.
Seyfert's, L. F., Sons, Philadelphia, Pa.
Shaw, Willis, Chicago, Ill.
Stewart, John A., Electric Co., Cincinnati, O.
Straub Machinery Co., Cincinnati, O.
Thompson, Son & Co., New York, N. Y.
Toomey, Frank, Philadelphia, Pa.
Valdosta Foundry & Machine Co., Valdosta, Ga.
Waters, John A., & Co., Richmond, Va.
Wickes Bros., Pittsburg, Pa.
Wolf, L., & Bro., Cincinnati, O.
Wood & Co., Chicago, Ill.

Machine Tools.
Barnes, W. F., & J., Co., Rockford, Ill.
Baush Machine Tool Co., Springfield, Mass.
Bickford Drill & Tool Co., Cincinnati, O.
Cincinnati Milling Machine Co., Cincinnati, O.
Fosdick Mch. Tool Co., Cincinnati, O.
Greaves, Klusman & Co., Cincinnati, O.
Landis Tool Co., Waynesboro, Pa.
McCabe, J. J., New York, N. Y.
Pratt & Whitney, Hartford, Conn.
Savannah Loco. Works & Supply Co., Savannah, Ga.
Schumacher & Boye, Cincinnati, O.
Walke, Henry, Co., Norfolk, Va.

Mail Chutes.
Cutler Mfg. Co., Rochester, N. Y.

Mattresses.
Perfection Mattress Co., Birmingham, Ala.

Mechanical Draft.
Allington & Curtis, Saginaw, Mich.
American Blower Co., Detroit, Mich.
Andrews & Johnson Co., Chicago, Ill.
Boston Blower Co., Hyde Park, Mass.
Dixie Mfg. Co., Baltimore, Md.
Sturtevant, B. F., Co., Boston, Mass.

Mercantile Agencies.
International Mercantile Agency, New York, N. Y.

Merry-Go-Rounds.
Herschell-Spillman & Co., North Tonawanda, N. Y.
McIntire, P. C., & Co., Charlotte, N. C.
Norman & Evans, Lockport, N. Y,

Metal-Working Machinery.
Barnes, W. F., & J., Co., Rockford, Ill.
Baush Machine Tool Co., Springfield, Mass.
Bertsch & Co., Cambridge City, Ind.
Bickford Drill & Tool Co., Cincinnati, O.
Cincinnati Milling Machine, Cincinnati, O.
Fosdick Machine Tool Co., Cincinnati, O.
Gibbes. W. H., & Co., Columbia, S. C.
Greaves, Klusman & Co., Cincinnati, O.
Landis Tool Co., Waynesboro. Pa.
McCabe, J. J., New York, N. Y.
Niagara Machine & Tool Works, Niagara Falls, N. Y.
Pratt & Whitney Co., Hartford, Conn.
Robinson, J. M., Mfg. Co., Cincinnati, O.
Royersford Foundry & Machine Co., Royersford, Pa.
Savannah Loco. Works & Supply Co., Savannah, Ga.
Schumacher & Boye, Cincinnati, O.
Walke, Henry, Co., Norfolk, Va.
Whiton Machine Co., D. E., New London, Conn.

Meters. (Gas.)
Pittsburg Meter Co., E, Pittsburg, Pa.

Meters. (Water.)
Pittsburg Meter Co., E., Pittsburg, Pa.
Worthington, Henry R., New York, N. Y.

Mill Engineers and Architects.
Collier & Brown, Atlanta Ga.
Dyer. D. H., & Son, Fall River, Mass.
Makepeace, C. R., & Co., Providence, R. I.
Praray, C. A. M., & Co., Providence, R. I.
Shaw, Fred. G., Augusta, Ga.
Tompkins, D. A., Co., Charlotte, N. C.
Whaley, W. B. Smith & Co., Columbia, S. C.
Wheeler & Runge, Charlotte, N. C.

Milling Machines.
Bailey-Lebby Co., Charleston, S. C.
Cincinnati Milling Machine Co., Cincinnati, O.
Fosdick Machine Tool Co., Cincinnati, O.
Walke, Henry, Co., Norfolk, Va.

Mill Supplies.
Alexander, S. B., Jr., Co., Charlotte, N. C.
Bailey-Lebby Co., Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.
Case Mfg. Co., Columbus, O.
Columbia Supply Co., Columbia, S. C.
Gainesville Iron Works, Gainesville, Ga.
Greenwald Co., I. & E., Cincinnati, O.
Hartfelder-Garbutt Co., Savannah Ga.
Lombard Iron Works & Supply Co., Augusta, Ga.
Maxfield, H. E., & Co., New York, N. Y.
Mecklenburg Iron Works, Charlotte, N. C.
Miller Oil & Supply Co., Indianapolis, Ind.
Simmons, John, Co., New York City.
Smith-Courtney Co., Richmond, Va.

Mineral Water.
Aldrich, F. B., Baltimore, Md.

Mineral Wool.
U. S. Mineral Wool Co., New York, N. Y.

Mining Machinery. (Gold, Copper, Slate, etc.)
Bartlett C. O., & Snow Co., Cleveland, O.
Cresson Co., Geo. V., New York, N. Y.
Flory, S., Mfg. Co., Bangor, Pa.
Ingersoll-Sergeant Drill Co., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
Mecklenburg Iron Works, Charlotte, N. C.
Northern Electric Mfg. Co., Madison, Wis.
Rawson & Morrison Mfg. Co., Cambgpt., Boston, Mass.

Mixing Machinery.
Bartlett, C. O., & Snow Co., Cleveland, O.
Drake Standard Mch. Wks., Chicago, Ill.
Dunning, W. D., Syracuse, N. Y.
Ransome Concrete Machinery Co. New York, N. Y.
Walker & Elliott, Wilmington, Del.

Mortar Colors.
Chattanooga Paint Co., Chattanooga, Tenn.
French. Samuel H., & Co., Philadelphia, Pa.

Nails. (Cut.)
Old Dominion Iron & Nail Works Co., Richmond, Va.

Nails. (Wire.)
Ludlow-Saylor Wire Co., The. St. Louis, Mo.

Oats Cleaner. (Automatic.)
Kasper Oats Cleaner Co., Chicago, Ill.

Office Fixtures.
Himmel, M. L., & Son, Baltimore, Md.
Wisconsin Iron & Wire Works, Milwaukee, Wis.

Oils.
Cook's, Adam, Sons, New York, N. Y.
Bird, W. M., & Co., Charleston, S. C.
Galena-Signal Oil Co., Franklin, Pa.
Ironsides Co., Columbus, O.
Miller Oil & Supply Co., Indianapolis, Ind.
Robinson, Wm. C., & Son, Co., Baltimore, Md.

Oil-Burning Appliances.
Petroleum Iron Works Co., Washington, Pa.
Rockwell Engineering Co., New York, N. Y.

Oilers.
Gem Mfg. Co., Pittsburg, Pa.
Ironsides Co., Columbus, O.
Lunkenheimer Co., Cincinnati, O.

Organizers and Developers
MacAfee, John Blair, Philadelphia, Pa.
Mechanics' Electric Co., Boston, Mass.
Railways & Light Co., Baltimore, Md.
Risdon, H. C., Washington, D. C.
Zell. Robt. Ross, Birmingham, Ala.

Packing.
Boston Belting Co., Boston, Mass.
Broderick & Bascom Rope Co., St. Louis, Mo.
Jenkins Bros., New York, N. Y.
National Rawhide & Belting Co., Niles, Mich.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Peerless Rubber Mfg. Co., New York, N. Y.
Shaffer Boiler & Engine Mfg. Co., Baltimore, Md.
Voorhees Rubber Mfg. Co., Jersey City, N. J.

Paint. (Cold Water.)
Bird, J. A., & W., & Co., Boston, Mass.
Columbia Refining Co., New York, N. Y.
Fox, M. Ewing, & Co., New York, N. Y.
Hook, F. E., Hudson, Mich.

Paint. (Roofing, etc.)
Armitage Mfg. Co., The, Richmond, Va.
Barrett Mfg. Co., Philadelphia, Pa.
Bird, W. M., & Co., Charleston, S. C.
Buchanan-Foster Co., Philadelphia, Pa.
Chattanooga Paint Co., Chattanooga, Tenn.
Detroit Graphite Mfg. Co., Detroit, Mich.
Dixon Crucible Co., Joseph, Jersey City, N. J.
Eastern Granite Roofing Co., New York, N. Y.
French. Samuel H., & Co., Philadelphia, Pa.
Ironsides Co., Columbus. O.
Simmons, John, Co., New York, N. Y.
Standard Paint Co., New York. N. Y.
Wisconsin Graphite Co , Pittsburg, Pa,

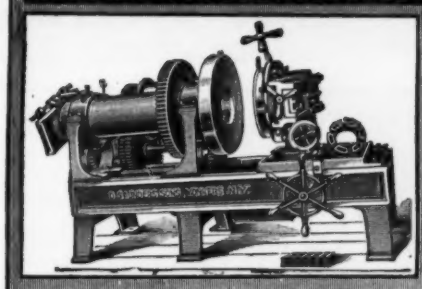
Painting Machinery.
Hook, F. E., Hudson, Mich.
Star Brass Works Co., The, Chicago, Ill.

Paper. (Roofing, Building, Sheathing, etc.)
Armitage Mfg. Co., The, Richmond, Va.
Barrett Mfg. Co., Philadelphia, Pa.
Buchanan-Foster Co., Philadelphia, Pa.
Eastern Granite Roofing Co , New York, N. Y.
Garrett, C. S., & Son, Co., Philadelphia, Pa.
National Roofing & Supply Co., Louisville, Ky.
Southern Roofing & Paving Co., Louisville, Ky.
Standard Paint Co., The, New York, N. Y.

Paper. (Sand, Emery.)
Baeder, Adamson & Co., Philadelphia, Pa.

Parquetry.
Adams, J. M., Baltimore, Md.
Smith, J. Summerfield, & Co., Baltimore, Md.

PIPE THREADING AND CUTTING MACHINERY



40 YEARS EXPERIENCE
has enabled us to produce machines which for quality and general excellence are as nearly perfect as can be made.
SEND FOR CATALOGUE.

YONKERS, D. SAUNDERS' SONS NEW YORK

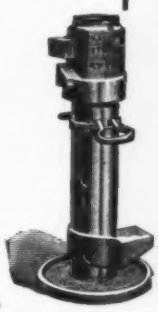
Hydraulic Jacks

Jacks built as they should be made—with rams without forced joints or welds—with cylinders bored from solid steel—with no by-pass holes to cut and wear the packing.
Jacks that will stand rough and tumble use and wear well. Jacks for pulling, pushing or lifting. Nearly 300 kinds to choose from.

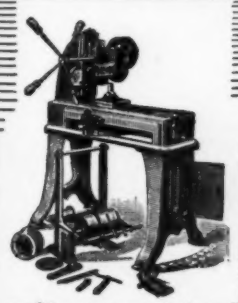
Send for Jack catalog.

Watson-Stillman Co.

453 The Rookery, Chicago.
201-11 East 43d Street, New York.



Gear Cutting Machines.
To be used for Repair Work in
Mills, Factories, Machine Shops.



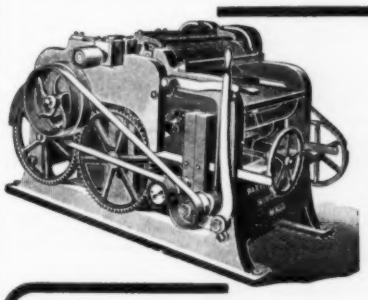
Will do all kinds of **Gear Cutting.** Is so simple and convenient that it will turn out a large amount of the work for which it is particularly designed.

The **Cutter Head** is adjustable for handling **Worms, Bevel and Face Wheels.**

The **Cutter Spindle** is strongly geared, accurately fitted and adjustable. All the details of the machine have been carefully studied and all the parts are well proportioned and finely fitted. Now being used by 300 representative mills, including 24 in Fall River, Mass.

Sent on trial to responsible parties.
Send for Photographs and our 1902 Pamphlet.

The D. E. Whiton Machine Co.
NEW LONDON CONN.



WHITNEY PLANERS

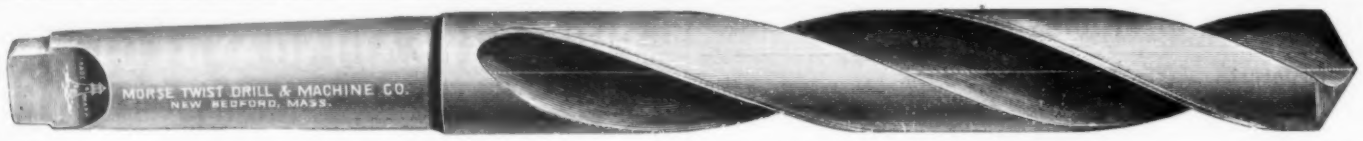
are especially constructed to eliminate vibration between work and cutter knives—feed rolls are all geared and pressure bars hold the work firmly close to cut.

Cutter Heads are made of tool steel and Cylinder is of small diameter—insures rapid, smooth planing.

SEND FOR CATALOG.

Baxter D. Whitney & Son,
Winchendon, Mass.

FOREIGN AGENTS—Henry Kelly & Co., 26 Pall-Mall, Manchester, Eng.; Schuchardt & Schutte, Berlin, Cologne, Brussels, Vienna, Stockholm, St. Petersburg; Sussfeld, Lorsck & Co., Paris, France.



BUY YOUR

Genuine

Bangor

Roofing

SLATE

Direct from the

MANUFACTURER

GENUINE BANGOR SLATE COMPANY,

EASTON, PENNA.

HOOPES & TOWNSEND CO.

Philadelphia, Pa.

MAKE RIVETS

IN SOLID DIES.

No. 9 x ¼ in. to 1½ x 42 in.

ROSS-MEEHAN FOUNDRY CO.

Chattanooga, Tennessee.

GREY & MALLEABLE IRON FOUNDERS.

M.C.B. COUPLERS.

CASTINGS

CLIMAX

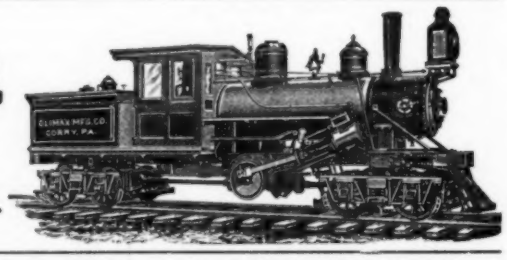
Geared Locomotives,

For Wood or Iron Rail.

Send for Illustrated Catalog.

CLIMAX MFG. CO.

CORRY, PA.



LIGHT LOCOMOTIVES.

All Gauges, Sizes and Designs.

Steam and Compressed Air.

9th Edition Catalogue mailed free to intending purchasers (or to accommodate others on receipt of 50c. in stamps).

H. K. PORTER CO.

6th Ave., PITTSBURG, PA.

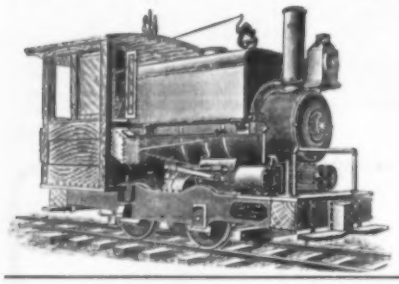
Locomotives, narrow and wide gauge on hand.

THE WEIR FROG CO. CINCINNATI, O. L. C. WEIR PRES.

SOLE MANUFACTURERS OF FRED. G. WEIR'S IMPROVED RIGID & SPRING FROGS, CROSSINGS SINGLE & THREE THROW SPLIT SWITCHES. FIXED & AUTOMATIC SWITCH STANDS. STEEL DIE FORMED RAIL BRACES, SWITCH FIXTURES, ETC.

CABLE & ELECTRIC TRACK WORK FROGS, SWITCHES, CROSSINGS, CURVES RAIL CHAIRS ETC.

THE JOHN F. BYERS MACHINE CO.



RAVENNA, OHIO.

Manufacturers of

Hoisting Engines,

LOCOMOTIVES,

Derrick Cars, Derrick Irons,

Etc.

Write for Catalogue "G."

STEEL CASTINGS

OPEN HEARTH Steel Castings of every description, for Electrical Machinery; Dredging, Rolling and Sugar Mill Machinery; Locomotive, Railroad and Bridge Work, etc.

McHAFFIE Steel Castings of all shapes and sizes, from 1 lb. up. Superior for Crankshafts, Gearing and other purposes where great wearing results are required.

CHESTER STEEL CASTINGS CO.

Works, CHESTER, PA. Office, 407 Sansom St., PHILA., PA.

Correspondence Solicited.

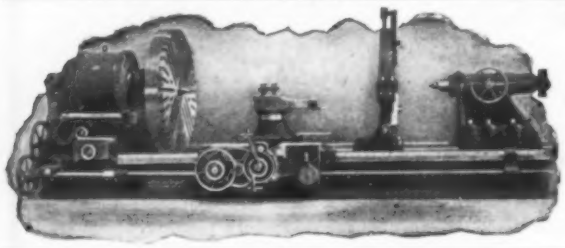
HARTFELDER-GARBUTT CO.

Mill and Railroad Supplies, Machinery, Engines and Boilers.

301, 303, 305 West Bay St., Cor. Jefferson,

Agents for Revere Rubber Co., Chicago Belting Co. and Ohio Valley Pulley Co.

SAVANNAH, GA.



Savannah Locomotive Works & Supply Co.

Savannah, Georgia.

LOCOMOTIVES — Bought, Sold, Exchanged, Rebuilt.

AGENTS:
Nagle Engines and Boilers.
Niles-Bement-Pond Co.
Midvale Steel Co.
Weinman Machine Co.

Niles-Bement Pond Co.
High-Grade Metal Working Tools.
Write us for Quotations.

PATTERNS

EVERY SIZE AND DESCRIPTION

WILKS FOUNDRY COMPANY,

TOLEDO, OHIO.

CASTINGS

FROM 1 OZ. TO 30 TONS

TWO SHOPS FOR LIGHT AND HEAVY WORK

STRICTLY A JOBBING FOUNDRY

Classified Index of Articles Advertised

For Alphabetical Index See Page 38.

Paste. (Graphite Pipe Joint.)
Wisconsin Graphite Co., Pittsburg, Pa.

Pattern Makers' Machinery
Fay, J. A., & Egan Co., Cincinnati, O.

Patterns. (Metal.)
Richmond Pattern Works, Richmond, Va.
Ryan, J. J., & Co., Chicago, Ill.
Wilks Foundry Co., Toledo, O.

Patterns. (Wooden.)
Richmond Pattern Works, Richmond, Va.
Wilks Foundry Co., Toledo, O.

Paving Material.
Barrett Mfg. Co., Philadelphia, Pa.
National Roofing & Supply Co., Louisville, Ky.
Robinson Contracting Co., Geo. A., Mobile, Ala.
Southern Roofing & Paving Co., Louisville, Ky.

Perforated Metal.
Aitchison Perforated Metal Co., Robert, Chicago, Ill
Beckley, A. J., Co., Garwood, N. J.
Caldwell, H. W., & Son Co., Chicago, Ill.
Harrington & King Perforating Co., Chicago, Ill
Hendrick Mfg. Co., The, Ltd., Carbondale, Pa.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.
Mundt, Charles, & Sons, New York, N. Y.
Stimpson, E. B., & Son, New York, N. Y.

Phosphate Machinery.
Bailey-Lebby Co., The, Charleston, S. C.
Bradley Pulverizer Co., Boston, Mass.
Cameron & Barkley Co., Charleston, S. C.
Cresson Co., Geo. V., New York, N. Y.
Foos Mfg. Co., Springfield, O.
Link-Belt Engineering Co., Philadelphia, Pa.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
Raymond Bros. Impact Pulverizer Co., Chicago, Ill.
Simpson, J. S., & G. F., Brooklyn, N. Y.
Smidth & Co., F. L., New York, N. Y.
Tompkins, D. A., Co., Charlotte, N. C.
Valk & Murdoch Iron Works, Charleston, S. C.
Walker & Elliott, Wilmington, Del.

Phosphor Bronze. (Wire Rods, Sheets.)
Ryan, J. J., & Co., Chicago, Ill.
Phosphor Bronze Smelting Co., Ltd., Philadelphia, Pa.
Van Duzen, E. W., Co., Cincinnati, O.

Pianos and Organs.
Steiff, Charles M., Baltimore, Md.

Pig Iron.
Alabama Con. Coal & Iron Co., Birmingham, Ala.
Bourne-Fuller Co., Cleveland, O.

Piling.
International Creosoting & Const. Co., Galveston, Tex.
West Pascagoula Creosote Wks., W. Pascagoula, Miss.

Pillow Blocks.
Caldwell, W. E., Co., Louisville, Ky.
Cresson Co., Geo. V., New York, N. Y.
Golden's Foundry & Machine Co., Columbus, Ga.

Pipe. (Brass and Copper.)
Waterbury Brass Co., New York, N. Y.

Pipe. (Cast Iron.)
Dimmick Pipe Co., Birmingham, Ala.
General Fire Extinguisher Co., Providence, R. I.
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
U. S. Cast Iron Pipe & Foundry Co., Chattanooga, Tenn.
Wood, R. D., & Co., Philadelphia, Pa.

Pipe. (Coil.)
National Pipe Bending Co., New Haven, Conn.
Wolf Co., Fred. W., Chicago, Ill.

Pipe. (Lead.)
Robertson Mfg. Co., James, Baltimore, Md.

Pipe. (Riveted.)
American Spiral Pipe Works, Chicago, Ill.
Girard Boiler & Mfg. Co., Girard, O.
Keeler, E., Co., Williamsport, Pa.
Petroleum Iron Works Co., Washington, Pa.

Pipe. (Sewer and Culvert.)
Georgia Vitrified Brick & Clay Co., Augusta, Ga.
Maryland Lime & Cement Co., Balto., Md.
Pomona Terra Cotta Co., Pomona, N. C.
Stevens' Sons Co., H., Macon, Ga.
Tallerday Steel Pipe & Tank Co., Waterloo, Ia.
Warner Co., Chas., Wilmington, Del.

Pipe. (Sheet Steel.)
Dixie Mfg. Co., Baltimore, Md.
Tallerday Steel Pipe & Tank Co., Waterloo, Ia.

Pipe. (Spiral Riveted.)
American Spiral Pipe Works, Chicago, Ill.

Pipe. (Wrought Iron.)
Bourne-Fuller Co., Cleveland, O.
Columbia Supply Co., Columbia, S. C.
General Fire Extinguisher Co., Providence, R. I.
Simmons, John, Co., New York City.

Pipe Cutting and Threading Mach.
Saunders' Sons, D., Yonkers, N. Y.

Pipe Fittings.
Columbia Supply Co., Columbia, S. C.
General Fire Extinguisher Co., Providence, R. I.
Robertson Mfg. Co., James, Baltimore, Md.
Simmons, John, Co., New York, N. Y.
Wolf Co., Fred W., Chicago, Ill.

Pipe Flanges. (Weldless Steel.)
Latrobe Steel Co., Philadelphia, Pa.

Pipe Unions and Joints.
Dart Mfg. Co., E. M., Providence, R. I.

Planers. (Metal.)
Bailey-Lebby Co., Charleston, S. C.
Savannah Locomotive & Car Works, Savannah, Ga.
Walke, Henry, Co., Norfolk, Va.

Plaster Ornaments.
French, Samuel H., & Co., Philadelphia, Pa.

Plating. (Nickel.)
Hanson & Van Winkle Co., Newark N. J.
Wisconsin Iron & Wire Works, Milwaukee, Wis.

Plumbers' Supplies and Tools.
Roberston Mfg. Co., James, Baltimore, Md.
Simmons, John, Co., New York City.

Portable Tools. (For Railway Repair Shops.)
Underwood, H. B., & Co., Philadelphia, Pa.

Power Transmitting Machinery.
Brown, A. & F., Co., New York, N. Y.
Caldwell, H. W., & Son Co., Chicago, Ill.
Case Mfg. Co., Columbus, O.
Coil Clutch Mfg. Co., New York, N. Y.
Cresson, Co., Geo. V., New York, N. Y.
Dunn Mchy. Co., Atlanta, Ga.
Fairmount Machine Co., Philadelphia, Pa.
Hunt Co., C. W., New York, N. Y.
Lane Mfg. Co., Montepelier, Vt.
Link-Belt Engineering Co., Philadelphia, Pa.
Northern Electric Mfg. Co., Madison, Wis.
Nordyke & Marmon Co., Indianapolis, Ind.
Wood's, T. B., Sons, Chambersburg, Pa.

Presses. (Baling, Cottonseed Oil, etc., Hydraulic and Power.)
Boomer & Boschert Press Co., Syracuse, N. Y.
Bushnell Press Co., G. H., Thompsonville, Conn.
Cardwell Machine Co., Richmond, Va.
Continental Gin Co., Birmingham, Ala.
Gibbes, W. H., & Co., Columbia, S. C.
Johnson, John, & Co., New York, N. Y.
Tompkins, D. A., Co., Charlotte, N. C.
Valk & Murdoch Iron Works, Charleston, S. C.
Watson-Stillman Co., New York, N. Y.

Presses. (Stamping.)
Leffler, Chas., & Co., Brooklyn, N. Y.
Niagara Machine & Tool Works, Buffalo, N. Y.

Pulleys. (Friction Clutch.)
Blakeslee Mfg. Co., Birmingham, Ala.
Brown, A. & F., Co., New York, N. Y.
Cresson Co., Geo. V., New York, N. Y.
Fairmount Machine Co., Philadelphia, Pa.
Smith, S. Morgan, Co., York, Pa.
Williams, M. F., Mfg. Co., St. Louis, Mo.
Wood's T. B., Sons, Chambersburg, Pa.

Pulleys. (Pneumatic.)
Williams, M. F., Mfg. Co., St. Louis, Mo.

Pulleys. (Wood Split.)
Caldwell, H. W., & Son Co., Chicago, Ill.
Caldwell, W. E., Co., Louisville, Ky.
Chase Pulley Co., Providence, R. I.
Federal Mfg. Co., Milwaukee, Wis.
Kessey Pulley Co., Toledo, O.
Lane Mfg. Co., Montepelier, Vt.
Oneida Steel Pulley Co., Oneida, N. Y.
Saginaw Mfg. Co., Saginaw, Mich.
Smith, H. B., Machine Co., Smithville, N. J.

Pulleys. (Steel Split.)
American Pulley Co., Philadelphia, Pa.
Federal Mfg. Co., Milwaukee, Wis.
Oneida Steel Pulley Co., Oneida, N. Y.

Pulleys, Shafting and Hangers.
Brown, A. & F., Co., New York, N. Y.
Caldwell, H W., & Son Co., Chicago, Ill.
Case Mfg. Co., Columbus, O.
Cresson Co., Geo. V., New York, N. Y.
Davis Foundry & Machine Works, Rome, Ga.
Fairmount Machine Co., Philadelphia, Pa.
Fay, J. A., & Egan Co., Cincinnati, O.
Federal Mfg. Co., Milwaukee, Wis.
Gainesville Iron Works, Gainesville, Ga.
Golden's Foundry & Machine Co., Columbus, Ga.
Greenwald Co., I. & E., Cincinnati, O.
Jeffrey Mfg. Co., The, Columbus, O.
Lane Mfg. Co., Montpelier, Vt.
Link-Belt Engineering Co., Philadelphia, Pa.
Lombard Iron Works & Supply Co., Augusta, Ga.
Maryland Foundry & Machine Co., Baltimore, Md.
Nordyke & Marmon Co., Indianapolis, Ind.
Schofields, J. S., Sons Co., Macon, Ga.
Smith, H. B., Machine Co., Smithville, N. J
Smith, S. Morgan, Co., York, Pa.
Stilwell-Bierce & Smith-Vaile Co., Dayton, O.
Tompkins, D. A., Co., Charlotte, N. C.
Valley Iron Works, Williamsport, Pa.
Wolf Co., Chambersburg, Pa.
Woods, T. B., Sons, Chambersburg, Pa.

Pumps. (Hot Air.)
American Machine Co., Wilmington, Del.

Pumps. (Centrifugal.)
Erie Pump & Engine Co., Erie, Pa.
Southwark Foundry & Machine Co., Philadelphia, Pa
Wood & Co., R. D., Philadelphia, Pa.

Pumps. (Hand.)
Flint & Walling Mfg. Co., Kendalville, Ind.

Pumps. (Hydraulic.)
American Steam Pump Co., Battle Creek, Mich.
Cardwell Machine Co., Richmond, Va.
Niagara Hydraulic Engine Co., Chester, Pa.
Watson-Stillman Co., New York, N. Y.

Pumps. (Pneumatic.)
Bacon Air Lift Co., New York, N. Y.
Ingersoll-Sergeant Drill Co., New York, N. Y.
Pneumatic Engineering Co., New York, N. Y.

Pumps. (Power Boiler-Feed.)
Cameron Steam Pump Works, A. S., New York, N. Y.
McGowan Co., John H., Cincinnati, O.
Park Mfg. Co., Charlotte, N. C.
Worthington, Henry R., New York, N. Y.

Pumps. (Steam.)
Alberger Condenser Co., New York, N. Y.
American Steam Pump Co., Battle Creek, Mich.
Cameron Steam Pump Works, A. S., New York, N. Y.
Cameron & Barkley Co., Charleston, S. C.
Cook Well Co., St. Louis, Mo.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Downie Pump Co., Downieville, Pa.
Gibbes, W. H., & Co., Columbia, S. C.
McGowan, John H., & Co., Cincinnati, O.
Murray Iron Works, Burlington, Iowa.
Pulsometer Steam Pump Co., New York, N. Y.
Savannah Locomotive & Car Works, Savannah, Ga.
Scranton Steam Pump Co., Scranton, Pa.
Stilwell-Bierce & Smith-Vaile Co., Dayton, O.
Worthington, Henry R., New York, N. Y.

Pumps. (Trench.)
Edson Manufacturing Co., Boston, Mass.

Pumping Machinery.
American Steam Pump Co., Battle Creek, Mich.
Bacon Air Lift Co., New York, N. Y.
Cameron, A. S., Steam Pump Works, New York, N. Y.
Cook Well Co., The, St. Louis, Mo.
Dean Bros. Steam Pump Works, Indianapolis, Ind.
Downie Pump Co., Downieville, Pa.
Erie Pump & Engine Co., Erie, Pa.
Myers, F. E., & Bro., Ashland, O.
Pneumatic Engineering Co., New York, N. Y.
Stilwell-Bierce & Smith-Vaile Co., Dayton, O.
Walke, Henry, Co., Norfolk, Va.
Wood, R. D., & Co., Philadelphia, Pa.
Worthington, Henry R., New York, N. Y.

Punching and Shearing Machinery.
Bertsch & Co., Cambridge City, Ind.
Niagara Machine & Tool Works, Buffalo, N. Y.
Robinson, J. M., Mfg. Co., Cincinnati, O.
Royersford Foundry & Machine Co., Royersford, Pa.
Wood, R. D., & Co., Philadelphia, Pa.

Quarrying and Stonecutting Mchy.
Ingersoll-Sergeant Drill Co., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Rand Drill Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.

Rack Locomotives. [See Locomotive Bldrs.]

Railroad Equipment and Supplies. (New and Second-hand.)
Alabama Frog & Switch Co., Anniston, Ala.
American Frog & Switch Co., Hamilton, O.
American Locomotive Co., New York, N. Y.
Apex Equipment Co., New York, N. Y.
Bailey-Lebby Co., The, Charleston, S. C.
Bourne-Fuller Co., Cleveland, O.
Birmingham Rail & Locomotive Co., Birmingham, Ala.
Bowen & Street Equipment Co., Norfolk, Va.
Contractors Equipment Co., Philadelphia, Pa.
Cox, Jr., Justice, & Co., Ltd., Philadelphia, Pa.
Davis & Bryan, Philadelphia, Pa.
Fitz-Hugh-Luther Co., Chicago, Ill.
Harper Machinery Co., New York, N. Y.
Hartfelder-Garbutt Co., Savannah, Ga.
Hirsch, L. K., Co. Chicago, Ill.
Hitner's, H. A., Sons, Philadelphia, Pa.
Hyde Bros. & Co., Pittsburg, Pa.
Johnson, Chas. F., Buffalo, N. Y.
Joseph Iron Co., Isaac, Cincinnati, O.
Kilby Locomotive & Machine Works, Anniston, Ala.
Koppel, Arthur, New York, N. Y.
Low, Edgar S., Co., Pittsburg, Pa.
Macleary, J. H., & Co., Suffolk, Va.
Males Co., Cincinnati, O.
May & Spalding, Atlanta, Ga.
New York Equipment Co., New York, N. Y.
Porter, H. K., Co., Pittsburg, Pa.
Poulterer & Co., Philadelphia, Pa.
Robinson & Orr, Pittsburg, Pa.
Sabel Bros, Jacksonville, Fla.
Savannah Loco. Wks & Supply Co., Savannah, Ga.
Smith-Courtney Co., Richmond, Va.
Steel Rail Supply Co., The, New York, N. Y.
Southern Iron & Equipment Co., Atlanta, Ga.
Watson, Benj., New York, N. Y.
Weir Frog Co., Cincinnati, O.
Wonham-Magor Engine Works, New York, N. Y.
Zeinicker, W. A., Supply Co., St. Louis, Mo.

Railroad Frogs and Switches.
Alabama Frog & Switch Co., Anniston, Ala.
American Frog & Switch Co., Hamilton, O.
Apex Equipment Co., New York, N. Y.
Koppel, Arthur, New York City.
May & Spalding, Atlanta, Ga.
Weir Frog Co., Cincinnati, O.
Wonham-Magor Eng. Works, New York, N. Y.
Zeinicker, W. A., Supply Co., St. Louis, Mo.

Rails. (Steel.)
Apex Equipment Co., New York, N. Y
Bourne-Fuller Co., Cleveland, O.
Carey, George H., New York, N. Y.
Davis, O. W., New York, N. Y.
Franks, J. E., Savannah, Ga.
Hamel, Jno. J., & Co., Pittsburg, Pa.
Hirsch, L. K., Co., Chicago, Ill.
Hitner's, H. A., Sons, Philadelphia, Pa.
Johnson, Chas. F., Buffalo, N. Y.
Koppel, Arthur, New York, N. Y.
Macleary, J. H., & Co., Suffolk, Va.
Males Co., Cincinnati, O.
Maryland Rail Co., Cumberland, Md.
Richardson & Co., Inc., Pittsburg, Pa.
Robinson & Orr, Pittsburg, Pa.
Schonthal Iron & Steel Co., Cumberland, Md.

BALDWIN LOCOMOTIVE WORKS,

Single Expansion and Compound Locomotives.

BROAD and NARROW GAUGE LOCOMOTIVES, Mine and Furnace Locomotives, Compressed Air Locomotives, Tramway Locomotives, Plantation Locomotives, Oil Burning Locomotives.

ELECTRIC LOCOMOTIVES WITH WESTINGHOUSE MOTORS, ELECTRIC CAR TRUCKS WITH OR WITHOUT MOTORS.

All important parts made accurately to gauges and templates, after standard design or to railroad companies' drawings. Like parts of different locomotives of same class, perfectly interchangeable.

Cable Address: BALDWIN, PHILADELPHIA.

BURNHAM, WILLIAMS & CO., Philadelphia, Pa., U. S. A.

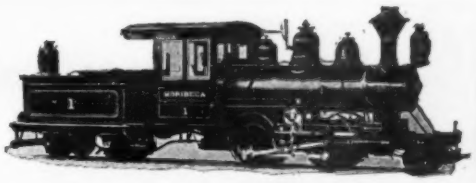
American Locomotive Co.

General Office, 25 Broad St., NEW YORK CITY.

BUILDERS OF

Locomotives

For all classes of services.



Mining Locomotives, Logging Locomotives, Compressed Air Locomotives, Contractors' Locomotives,

Schenectady Works, Schenectady, N. Y.
Brooks Works, Dunkirk, N. Y.
Pittsburg Works, Allegheny, Pa.
Richmond Works, Richmond, Va.
Cooke Works, Paterson, N. J.
Rhode Island Works, Providence, R. I.
Dickson Works, Scranton, Pa.
Manchester, Works, Manchester, N. H.

LATROBE STEEL COMPANY,
1200 Girard Bldg., Philadelphia, Pa. Works at Latrobe, Pa.
STEEL TIRES (Locomotive and Car Wheel.) PIPE FLANGES, CRUSHER RINGS and SHELLS.

BRASS FOUNDERS FINISHERS J. J. RYAN & CO.
68-74 West Monroe St., Chicago.
Best Bronze, Babbitt Metals, Brass and Aluminum CASTINGS on Short Notice.

THE AMERICAN FROG & SWITCH CO., Hamilton, O.
FROGS, SWITCHES, SWITCH STANDS, RAIL BRACES.

Westinghouse

Combined Magnetic Brake and Electric Car Heater.

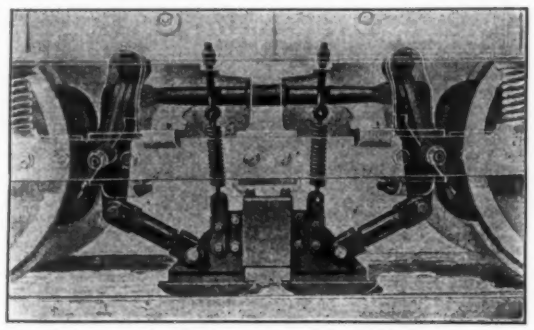
Economical, Simple and Certain in Operation.
Heats Cars Electrically without cost for Current.

For particulars address

Westinghouse Traction Brake Co.

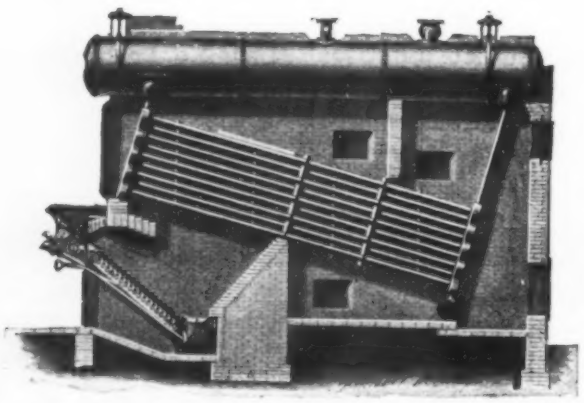
26 Cortlandt St., New York.

Manufactured by The Westinghouse Air Brake Co.



Westinghouse Magnetic Brake.

The Roney Stoker.



The Roney Stoker as applied to Babcock & Wilcox Boiler.

Permits the changing from one kind of coal to another without altering its construction.

For particulars address nearest office of

Westinghouse, Church, Kerr & Co., *Engineers,*

New York. Chicago. Boston. Pittsburg. Philadelphia. Detroit.

who sell the product of

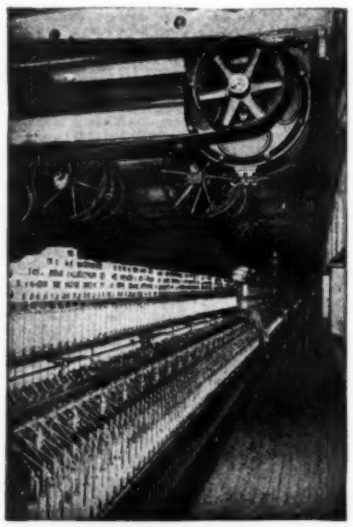
The Westinghouse Machine Company,

Pittsburg. Designers and Builders of Chicago.

Steam Engines, Gas Engines, Steam Turbines, Roney Mechanical Stokers.

Westinghouse Motors

Alternating and Direct Current.



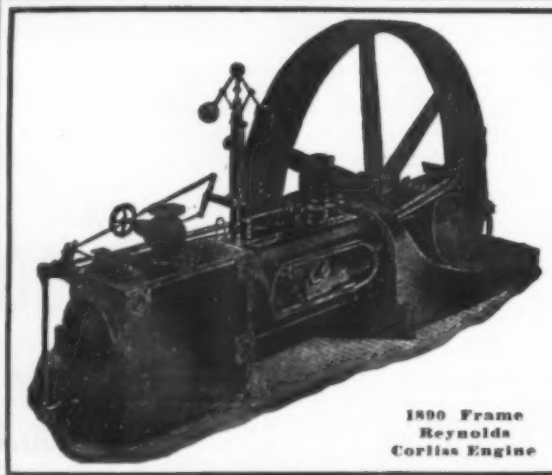
Westinghouse Induction Motor Driving Fly Frames.

Started or stopped from any point, at any time, by any one.

Circulars 1042 and 1050 for Particulars

Westinghouse Electric & Mfg. Co.

Sales Offices in all Large Cities. PITTSBURG, PA.



1890 Frame Reynolds Corliss Engine

ALLIS-CHALMERS COMPANY,

General Office, CHICAGO, New York Life Bldg.

SOLE BUILDERS OF

Reynolds Corliss Engines

FOR ALL POWER PURPOSES.

ENGINES ESPECIALLY ADAPTED FOR

COTTON MILLS and COTTON OIL MILLS.

BRANCH OFFICES
NEW YORK, Empire Building.
BOSTON, Board of Trade Building.
PITTSBURG, 1212 Frick Building.
NEW ORLEANS, LA., Hennen Building.
CHARLOTTE, N. C., Trust Building.
ATLANTA, GA., Equitable Building.

Classified Index of Articles Advertised

For Alphabetical Index See Page 38

Steel Rail Supply Co., The, New York, N. Y.
Union Rail Co., Pittsburg, Pa.
Wonham-Magor Eng. Works, New York, N. Y.
Zelnicker, W. A., Supply Co., St. Louis, Mo.

Reamers.
Morse Twist Drill & Machine Co., New Bedford, Mass
Pratt & Whitney Co., Hartford, Conn.
Polk, A. J., & Son, Millersburg, Pa.

Regulators. (Water and Steam Pressure.)
Crosby Steam Gage & Valve Co., Boston, Mass.

Repairs. (Engine & Pump.)
Underwood, H. B., & Co., Philadelphia, Pa.

Riveters. (Pneumatic.)
Rand Drill Co., New York, N. Y.

Road Machinery.
Acme Road Machinery Co., Frankfort, N. Y.
Kelly-Springfield Road Roller Co., Springfield, O.
Kilbourne & Jacobs Mfg. Co., Columbus, O.

Rock Crushers.
Austin Mfg. Co., Chicago, Ill.
Cresson, Geo. V., Co., New York, N. Y.
N. J. Foundry & Machine Co., New York, N. Y.

Roofers' and Tinners' Supplies.
Chattanooga Roof. & Fdry. Co., Chattanooga, Tenn.
Niagara Machine & Tool Works, Buffalo, N. Y.
Merchant & Co., Inc., Philadelphia, Pa.
Robinson, J. M. Mfg. Co., Cincinnati, O.

Roofing Tin. (See Tin Roofing.)

Roofing. (Felt, Tar, Asphalt, Paper, etc.)
American Roofing Co., Mobile, Ala.
American Tinplate Co., Pittsburg, Pa.
Armitage Mfg. Co., The, Richmond, Va.
Asphalt Ready Roofing Co., New York, N. Y.
Barrett Mfg. Co., Philadelphia, Pa.
Buchanan-Foster Co., Philadelphia, Pa.
Bird, F. W., & Co., East Walpole, Mass.
Bird, J. A., & W., & Co., Boston, Mass.
Carey, Philip, Mfg. Co., Lockland, O.
Chattannoga Roof. & Fdry. Co., Chattanooga, Tenn.
Eastern Granite Roofing Co., New York, N. Y.
Garrett, C. S., & Son, Co., Philadelphia, Pa.
Maryland Lime & Cement Co., Balto., Md.
Miller Oil & Supply Co., Indianapolis, Ind.
National Roofing & Supply Co., Louisville, Ky.
Southern Roofing & Paving Co., Louisville, Ky.
Standard Paint Co., New York, N. Y.
Stowell Mfg. Co., Jersey City, N. J.
Warren Chemical & Mfg. Co., New York, N. Y.
Zelnicker, W. A., Supply Co., St. Louis, Mo.

Roofing. (Metal shingles.)
Chattanooga Roof. & Fdry. Co., Chattanooga, Tenn
Cortright Metal Roofing Co., Philadelphia, Pa.
Merchant & Co., Inc., Philadelphia, Pa.
Montross Metal Shingle Co., Camden, N. J.
Penn Metal Ceiling & Roofing Co., Phila., Pa.

Roofing. (Slate.)
Dowman-Dozier Mfg. Co., Atlanta, Ga.
Galt, John, & Sons, New York, N. Y.
Genuine Bangor Slate Co., Easton, Pa.
McKenna, David, Slatington, Pa.

Roofing and Siding. (Metal.)
Cortright Metal Roofing Co., Philadelphia, Pa.
Dowman-Dozier Mfg. Co., Atlanta, Ga.
Merchant & Co., Philadelphia, Pa.
Scaife, Wm. B., & Sons Co., Pittsburg, Pa.
Virginia Bridge & Iron Co., Roanoke, Va.

Rope. (Transmission.)
American Mfg. Co., The, New York, N. Y.
Broderick & Bascom Rope Co., St. Louis, Mo.
Caldwell, W. E., Co., Louisville, Ky.
Columbian Cordage Co., Auburn, N. Y.
Cresson Co., Geo. V., New York, N. Y.
Durable Wire Rope Co., Boston, Mass.
Hunt Co., C. W., West Brighton, N. Y.
Ironsides Co., Columbus, O.
Link-Belt Engineering Co., Philadelphia, Pa.
Smith Co., S. Morgan, York, Pa.
Woods' Sons, T. B., Chambersburg, Pa.

Rubber Goods.
Boston Belting Co., Boston, Mass.
Eureka Fire Hose Co., New York, N. Y.
New Jersey Car Spring & Rubber Co., Jersey City, N. J.
Voorhees Rubber Mfg. Co., Jersey City, N. J

Sacks. (Fertilizer.)
Bailey, John T., & Co., Philadelphia, Pa.

Safety Water Columns and Gauges.
Amer. Stm. Gauge & Valve Mfg. Co., Jam. Plain, Mass.
Crosby Steam Gauge & Valve Co., Boston, Mass.
Lunkenheimer Co., Cincinnati, O.
Reliance Gauge Column Co., Cleveland, O.

Safes and Vaults.
York Safe & Lock Co., York, Pa.

Sand and Gravel. (For Filtering Water.)
Diamond Rock Sand Co., Phila., Pa.

Saws. (Band.)
Atkins, E. C., & Co., Indianapolis, Ind.
Fay, J. A., & Egan Co., Cincinnati, O.
Smith, H. B., Machine Co., Smithville, N. J.

Saw Gummer.
Miller Oil & Supply Co., Indianapolis, Ind.

Saws. [See Woodworking Machinery.]
Atkins, E. C., & Co., Indianapolis, Ind.
Gibbes, W. H., & Co., Columbia, S. C.
Huther Bros., Rochester, N. Y.
Miller Oil & Supply Co., Indianapolis, Ind.
Smith, H. B., Machine Co., Smithville, N. J.

Saw-Mill Machinery.
Bailey-Lebby Co., The, Charleston, S. C.
Beach, H. W., Montrose, Pa.
Cameron & Barkley Co., Charleston, S. C.
Chattanooga Machinery Co., Chattanooga, Tenn.
Columbia Supply Co., Columbia, S. C.
DeLoach Mill Mfg. Co., Atlanta, Ga.
Farquhar Co., A. B., Ltd., York, Pa.
Fay, J. A., & Egan Co., Cincinnati, O.
Frick Co., Waynesboro, Pa.
Gibbes, W. H., & Co., Columbia, S. C.
Hartfelder-Garbutt Co., Savannah, Ga.
Hench & Dromgold Co., York, Pa.
Hill, Wm. E., & Co., Kalamazoo, Mich.
Lane Mfg. Co., Montpelier, Vt.
Mecklenburg Iron Works, Charlotte, N. C.
Schofield's, J. S., Sons Co., Macon, Ga.
Smith, H. B., Machine Co., Smithville, N. J.
Soule Steam Feed Works, Meridian, Miss.
Southern Eng. & Boiler Works, Jackson, Tenn.
Union Iron Works Co., Selma, Ala.
Zelnicker, W. A., Supply Co., St. Louis, Mo.

Saw Sharpeners and Files. (Cotton Gin.)
Carver Cotton Gin Co., East Bridgewater, Mass.

Scales.
McDonald Bros., Pleasant Hill, Mo.
Osgood Scale Co., Binghampton, N. Y.
Richardson Scale Co., New York, N. Y.
Standard Scale & Supply Co., Ltd., Pittsburg, Pa.

Scales. (Automatic.)
Richardson Scale Co., New York, N. Y.

Scrap Iron and Steel.
Hirsch, L. K., Co., Chicago, Ill.
May & Spalding, Atlanta, Ga.

Screens. (Fly, Window and Door.)
Burrowes, E. T., Co., Portland, Me.
New Jersey Wire Cloth Co., Trenton, N. J.

Screens. (Ore, Coke, etc.)
Aitchison, R., Perforated Metal Co., Chicago, Ill.
Beckley, A. J., Co., Garwood, N. J.
Cresson Co., Geo. V., New York, N. Y.
Harrington & King Perforating Co., Chicago, Ill.
Hendrick Mfg. Co., Ltd., Carbondale, Pa.
Jeffrey Mfg. Co., The, Columbus, O.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.
New Jersey Wire Cloth Co., Trenton, N. J.
Meyers Mfg. Co., Fred. J., Hamilton, O.
Mundt & Sons, Charles, New York, N. Y.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
Wisconsin Iron & Wire Works, Milwaukee, Wis.

Screw Plates.
Polk, A. J., & Son, Millersburg, Pa.

Scroll Saws. [See Woodworking Machinery.]
Fay, J. A., & Egan Co., Cincinnati, O.
Smith, H. B., Machine Co., Smithville, N. J.

Seals. (Stock Certificates, etc.)
Middleton, J. W., Chicago, Ill.
National Seal Works, Richmond, Va.

Separators. (Dust.)
Allington & Curtis Mfg. Co., Saginaw, Mich.
Dixie Mfg. Co., Baltimore, Md.
Sturtevant Co., B. F., Boston, Mass.

Separators. (Steam and Oil.)
Bates Machine Co., Joliet, Ill.
Scranton Steam Pump Co. Scranton, Pa.
Webster & Co., Warren, Philadelphia, Pa.

Shapers.
Bailey-Lebby Co., Charleston, S. C.
Walke, Henry Co., Norfolk, Va.

Sharpening Stones.
Pike Mfg. Co., Pike Station, N. H.
Vitrified Wheel Co., Westfield, Mass.

Sheet Steel and Iron.
Bourne-Fuller Co., Cleveland, O.
Taylor, N. & G., Co., Philadelphia, Pa.

Shingles. (Metal.)
Chattanooga Roof. & Fdry. Co., Chattanooga, Tenn.
Cortright Metal Roofing Co., Philadelphia, Pa.
Merchant & Co., Inc., Philadelphia, Pa.
Montross Metal Shingle Co., Camden, N. J.
Penn Metal Ceiling & Roofing Co., Phila., Pa.

Ship Builders. (Iron and Steel.)
Baltimore Shipbuilding & Dry Dock Co., Balto., Md.
Newport News Shipbuilding & Dry Dock Co., Newport News, Va.

Shutters. (Steel Rolling.)
Kinnear Mfg. Co., Columbus, O.

Skylights.
Chattanooga Roof. & Fdry. Co., Chattanooga, Tenn.
Dowman-Dozier Mfg. Co., Atlanta, Ga.
Merchant & Co., Inc., Philadelphia, Pa.
Van Noorden, E., Co., Boston, Mass.

Slate. (Roofing.)
Galt, John, & Sons, New York, N. Y.
Genuine Bangor Slate Co., Easton, Pa.
McKenna, David, Slatington, Pa.

Slaters' Tools.
Galt, John, & Sons, New York, N. Y.

Smoke Stacks. (Iron and Steel.)
Birmingham Boiler Works, Birmingham, Ala.
Girard Boiler & Mfg. Co., Girard, O.
Keeler, E., Co., Williamsport, Pa.
Lombard Iron Works & Supply Co., Augusta, Ga.
Petroleum Iron Works Co., Washington, Pa.
Schofield's, J. S., Sons Co., Macon, Ga.

Solder.
Hiertz, Theo., Metal Co., St. Louis, Mo
Ryan, J. J., & Co., Chicago, Ill.

Speaking Tubes.
Electrical Material Co., Baltimore, Md.

Spelter.
Hiertz, Theo., Metal Co., St. Louis, Mo.

Spikes.
The Diamond State Steel Co., Wilmington, Del.

Springs. (Bicycle Saddle, Machinery, Railway and Spiral.)
Boston Belting Co., Boston, Mass.
Cary Spring Works, New York, N. Y.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.

Sprinklers. (Automatic.)
Bailey-Lebby Co., Charleston, S. C.
General Fire Extinguisher Co., Providence, R. I.

Stamp Mills.
Mecklenburg Iron Works, Charlotte, N. C.

Standpipes.
Birmingham Boiler Works, Birmingham, Ala.
Girard Boiler & Mfg. Co., Girard, O.
Hartley Boiler Works, Montgomery, Ala.
Keeler Co., E., Williamsport, Pa.
Lombard Iron Works & Supply Co., Augusta, Ga.
Means & Fulton Iron Work, Birmingham, Ala.
Petroleum Iron Works Co., Washington, Pa.
Virginia Bridge & Iron Co., Roanoke, Va.

Steam Fitters Supplies.
General Fire Extinguisher Co., Providence, R. I.
Maxfield, H. E., & Co., New York, N. Y.
McWilliams, Jos., & Co., Louisville, Ky.
Simmons, John, Co., New York City.

Steam Gages.
American Steam Gauge & Valve Mfg. Co., Jamaica Plain, Mass.
Crosby St. Gage & Valve Co., Boston, Mass.
Lunkenheimer Co., Cincinnati, O.

Steam Heating.
General Fire Extinguisher Co., Providence, R. I.
Keeler, E., Co., Williamsport, Pa.
Peck-Hammond Co., The, Cincinnati, O.
Tompkins, D. A., Co., Charlotte, N. C.
Webster & Co., Warren, Camden, N. J.

Steam Shovels. [See Dredges and Excavators.]

Steam Traps.
American Blower Co., Detroit, Mich.
Gibbes, W. H., & Co., Columbia, S. C.
Haines, W. S., Co., Phila., Pa.
Sturtevant Co., B. F., Boston, Mass.

Steamship Lines.
Baltimore Steam Packet Co., Baltimore, Md.
Chesapeake Steamship Co., Baltimore, Md.
Detroit & Buffalo Steamship Co., Detroit, Mich.
Merchants & Miners' Trans. Co., Baltimore, Md.

Steel. (Manufacturers of.)
American Sheet Steel Co., New York, N. Y.
Bourne-Fuller Co., Cleveland, O.
Chester Steel Castings Co., Philadelphia, Pa.
Taylor, N. & G., Co., Philadelphia, Pa.
The Diamond State Steel Co., Wilmington, Del.

Steel Buildings. (Designers, Builders.
Frink & Hazen, Baltimore, Md.
General Supply & Construction Co., New York, N. Y.
Scaife, Wm. B., & Sons Co, Pittsburg, Pa.
Schreiber, L., & Sons, Co., Cincinnati, O.
Va. Bridge & Iron Co., Roanoke, Va.

Steel Couplers. (Automatic.)
Latrobe Steel & Coupler Co., Philadelphia, Pa.

Stills. (Turpentine.)
McMillan Bros. Co., Mobile, Ala.

Stock Certificates.
Middleton, J. W., Chicago, Ill.
Myers Printing House, New Orleans, La.
National Seal Works, Richmond, Va.

Stokers. (Mechanical.)
Westinghouse, Church, Kerr & Co., Pittsburg, Pa.
Westinghouse Machine Co., Pittsburg, Pa.

Storage Receipts.
Baltimore Fidelity Warehouse Co., Baltimore, Md.

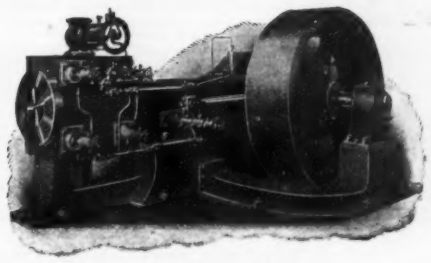
Structural Steel and Iron.
Belmont Iron Works, Philadelphia, Pa.
Bourne-Fuller Co., Cleveland, O.
Chesapeake Iron Works, Baltimore, Md.
Eureka Supply Co., Chattanooga, Tenn.
General Supply & Construction Co., New York, N. Y.
Girard Boiler & Mfg. Co., Girard, O.
Scaife, Wm. B. & Sons Co., Pittsburg, Pa.
Schreiber, L., & Sons Co., The, Cincinnati, O.
Virginia Bridge & Iron Co., Roanoke, Va.
Wisconsin Iron & Wire Works, Milwaukee, Wis.

Switchboards, Switches, etc.
Electrical Material Co., Baltimore, Md.
Standard Electric Co., Norfolk, Va.
Western Electrical Supply Co., St. Louis, Mo.
Westinghouse Electric & Mfg. Co., Pittsburg, Pa.

Tanks. (Iron and Steel.)
Birmingham Boiler Works, Birmingham, Ala.
Caldwell, W. E., Co., Louisville, Ky.
Flint & Walling Mfg. Co., Kendalville, Ind.
Girard Boiler & Mfg. Co., Girard, O.
Hammond Iron Works, Warren, Pa.
Harry Bros. Co., Dallas, Tex.
Hartley Boiler Works, Montgomery, Ala.
Keeler Co., E., Williamsport, Pa.
Lombard Iron Works & Supply Co., Augusta, Ga.
Means & Fulton Iron Works, Birmingham, Ala.
Petroleum Iron Works Co., Washington, Pa.
Scaife, W. B., & Sons Co., Pittsburg, Pa.
Schofields, J. S., Sons, Co., Macon, Ga.
Smith Co., S. Morgan, York, Pa.
Tallerday Steel Pipe & Tank Co., Waterloo, Ia.
Tompkins, D. A., Co., Charlotte, N. C.

"ABC" Fans and Blowers
For all uses
AMERICAN BLOWER CO
DETROIT, MICH.
NEW YORK CHICAGO LONDON

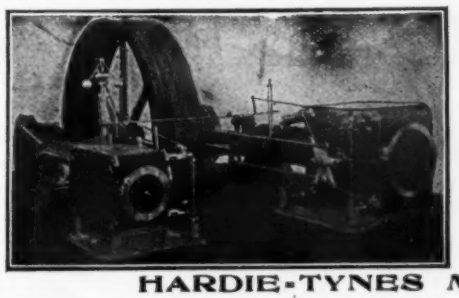
Harrisburg Engines



HARRISBURG STANDARD FOUR VALVE ENGINE

Harrisburg Foundry and Machine Works,
HARRISBURG, PA., U. S. A.

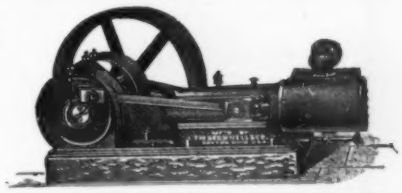
PHOENIX IRON WORKS CO.
MEADVILLE, PA.
ENGINES AND BOILERS



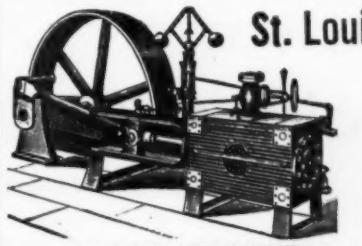
Engines.
CORLISS AND SLIDE VALVE ENGINES, HOISTING ENGINES, AIR COMPRESSORS, DREDGE MACHINERY, COMPLETE POWER PLANTS A SPECIALTY.

HARDIE-TYNES MFG. CO.
Box 406, Manufacturers, BIRMINGHAM, ALA.

PLEASE BEAR IN MIND THAT ALL PARTS OF THE



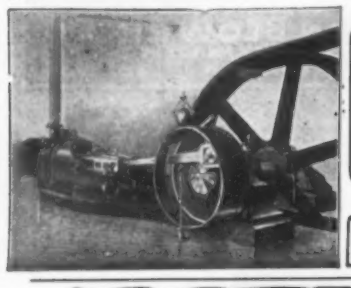
BROWNELL ENGINES
are strictly interchangeable. Send for Catalogue 13.
THE BROWNELL & CO., DAYTON, OHIO.
THE GREENSBORO SUPPLY CO., Greensboro, N. C., Selling Agents for North and South Carolina and Northern Georgia.



SEND FOR OUR NEW CATALOGUE.

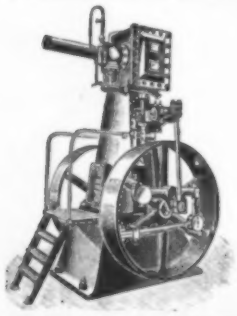
St. Louis Iron & Machine Works,
100 Chouteau St., ST. LOUIS, MO.
BUILDERS OF
St. Louis Corliss Engine
50 to 2000 H. P.
Brick Machinery.

SOUTHWARK FOUNDRY & MACHINE CO.
PHILADELPHIA, PA.



SOLE BUILDERS OF THE
PORTER ALLEN ENGINE
ADAPTED TO EVERY CLASS OF SERVICE
...BLOWING ENGINES....
WEISS CENTRAL CONDENSING PLANTS.

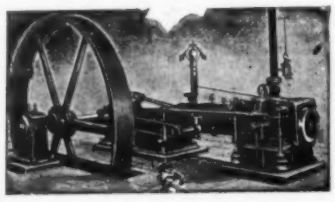
THE IMPROVED FISHKILL CORLISS ENGINE BUILT BY
FISHKILL LANDING MACHINE CO.
FISHKILL ON THE HUDSON N.Y.
HIGH ECONOMY... CLOSE REGULATION...NOISELESS OPERATION



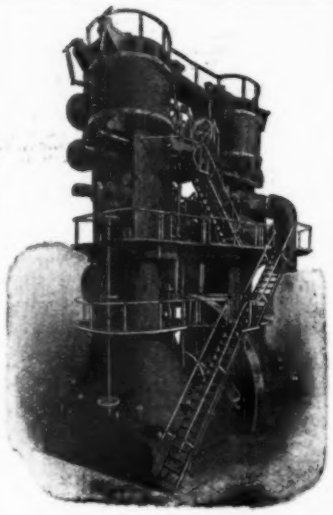
Shepherd Steam Engines
For All Service.
SINGLE EXPANSION AND COMPOUND.
Shepherd Engineering Co.
Box M. FRANKLIN, PA., U. S. A.

LUNKENHEIMER
Brass and Iron
Steam Specialties
"Intelligent steam users specify them"

SOUTHERN ENGINE & BOILER WORKS,
JACKSON, TENN.



—Builders of—
Corliss Engines,
Slide-Valve Engines, Tubular Boilers and Saw-Mill Machinery.

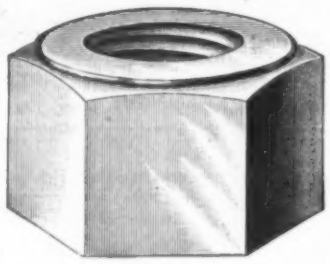


THE WM. TOD COMPANY
Blowing
Reversing
Electric
ENGINES
YOUNGSTOWN, OHIO.

THE E. W. VANDUZEN CO., Established 1837.
Prop's THE BUCKEYE BELL AND BRASS FOUNDRY,
CINCINNATI, OHIO, U. S. A.
Founders of High Grade Castings in
BRASS, GUN METAL, BRONZE and PHOSPHOR BRONZE.
For Elasticity and Great Tensile Strength, we recommend our
POMPEIAN BRONZE.
Babbitt and Anti-Friction Metals. Correspondence Solicited.

The Milton Manufacturing Co.,
MILTON, PENNSYLVANIA,
Manufacturers of Hot Pressed Nuts

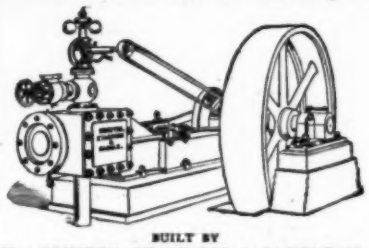
Blank or Tapped.
Your Specifications are solicited.



Material and Workmanship of superior quality.

ALSO MAKERS OF
Cold Punched Nuts, Wrought Washers,
MERCHANT BAR IRON, Etc.

America's Standard Slide Valve Engine.



BUILT BY
The HOUSTON, STANWOOD & GAMBLE CO.
Cincinnati, O.

ATLAS
Engines and Boilers
Simple, Strong, Durable and Economical.
Standard Types and Sizes.
Atlas Engine Works.
Indianapolis.
Dept. M.

"LITTLE GIANT" STEAM OUTFITS
will make you happy. Sizes 1½ to 10 h. p. In use several years. Simple, durable and powerful. Send for circular and price list.
Shaffer Boiler & Engine Mfg. Co.
227½ N. Calvert St., Baltimore.

Engines, Boilers, Saw Mills, Presses.
Write to GENERAL MANUFACTURERS OF MACHINERY
MECKLENBURG IRON WORKS, Charlotte, N. C.

Classified Index of Articles Advertised

For Alphabetical Index See Page 38

Valk & Murdoch Iron Works, Charleston, S. C.
Virginia Bridge & Iron Co., Roanoke, Va.
Wood, R. D., & Co., Phila., Pa.

Tanks. (Wood.)
Caldwell Co., W. E., Louisville, Ky.
Cypress Lumber Co., Apalachicola, Fla.
Davis, G. M., & Son, Palatka, Fla.
Lewis, H. F., & Co., Ltd., New Orleans, La.
Tupelo Tank Co., Mobile, Ala.

Tapes. (Measuring.)
Lufkin Rule Co., Saginaw, Mich.

Telephones. (Supplies, Equipment.)
Alexander, Jr., Co., S. B., Charlotte, N. C.
Electric Supply Co., Savannah, Ga.
Electrical Material Co., Baltimore, Md.
Piedmont Electric Co., Asheville, N. C.
Standard Electric Co., Norfolk, Va.
Western Electrical Supply Co., St. Louis, Mo.

Telephone Poles.
Electrical Material Co., Baltimore, Md.
Houston & Liggett, Lewisburg, Tenn.
International Creosoting & Const. Co., Galveston, Tex

Terne Plate.
Merchant & Co., Inc., Philadelphia, Pa.
Taylor, N. & G., Co., Philadelphia, Pa.

Terra Cotta.
Pomona Terra Cotta Co., Pomona, N. C.
Stevens, H., Sons, Co., Macon, Ga.

Textile Machinery. [See Cotton Mill Mach.

Threshers.
Farquhar, A. B., Co., York, Pa.
Cardwell Machine Co., Richmond, Va.
Gibbes, W. H., & Co., Columbia, S. C.

Tin. (Roofing.)
American Tinplate Co., New York, N. Y.
Taylor, N. & G., Co., Philadelphia, Pa.

Tinplate.
American Tinplate Co., New York, N. Y.
Merchant & Co., Inc., Philadelphia, Pa.
Taylor, N. & G., Co., Philadelphia, Pa.

Tires, Steel. (Locomotive and Car.)
Latrobe Steel Co., Philadelphia, Pa.

Tobacco Machinery.
Buckeye Iron & Brass Works, Dayton, O.
Cardwell Machine Co., Richmond, Va.

Tools. (Machine.) [See Machine Tools.]

Tools. (Machinists'.)
Barnes, W. F. & John, Co., Rockford, Ill.
Morse Twist Drill & Machine Co., New Bedford, Mass.
Polk, A. J., & Son, Millersburg, Pa.
Pratt & Whitney Co., Hartford, Conn.

Tools. (Pneumatic.)
Rand Drill Co., New York N. Y.

Tools. (Tinners'.)
Niagara Machine & Tool Works, Buffalo, N. Y

Tools. (For Rwy. Rep. Shops.) [See Port. Tools.]

Torches.
Wall, P., Mfg. Co., Allegheny, Pa.
Wells Light Mfg. Co., New York, N. Y.

Towers. (Steel and Wood.)
Caldwell Co., W. E., Louisville, Ky.
Flint & Walling Mfg. Co., Kendalville, Ind.
Tompkins, D. A., Co., Charlotte, N. C.

Tramway. (Overhead.)
Cohoes Iron Foundry & Machine Co., Cohoes, N. Y.
Moyer, J. W., & Co., Philadelphia, Pa.
New Jersey Fdy. & Mch. Co., New York, N. Y.
Speidel, J. G., Reading, Pa.

Tramway. (Wire Rope.)
Broderick & Bascom Rope Co., St. Louis, Mo.
Caldwell, H. W., & Sons Co., Chicago, Ill.
Cresson Co., George V., New York, N. Y.
Flory, S., Mfg. Co., Bangor, Pa.
Hunt Co., C. W., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Lidgerwood Mfg. Co., New York, N. Y.
Link-Belt Engineering Co., Nicetown (Phila.), Pa.
McLanahan-Stone Machine Co., Hollidaysburg, Pa.
Trenton Iron Co., Trenton, N. J.

Trucks and Drays. (Hand.)
Horner, W. P., Mfg. Co., Danville, Va.

Tube Cleaners.
Gem Mfg. Co., Pittsburg, Pa.

Tubing.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.

Tubing. (Seamless, Brass, Copper & Brazed.)
Waterbury Brass Co., New York, N. Y.

Turbines. [See Water Wheels.]

Turbines. (Steam.)
Westinghouse, Church, Kerr & Co., Pittsburg, Pa.
Westinghouse Machine Co., Pittsburg, Pa.

Turntables.
Koppel, Arthur, New York City.
Males Co., Cincinnati, O.
Virginia Bridge & Iron Co., Roanoke, Va.

Typewriters.
Pittsburg Writing Machine Co., Pittsburg, Pa.
Smith-Premier Typewriter Co., Baltimore, Md.

Typewriter Table Cabinets.
Dearborn Desk Co., Birmingham, Ala

Valves.
Amer. Stm. Gauge & Valve Mfg. Co., Jam. Plain, Mass.
Boston Belting Co., Boston Mass.
Columbia Supply Co., Columbia, S. C.
Crosby Steam Gauge & Valve Co., Boston, Mass.
General Fire Extinguisher Co., Providence, R. I.
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
Jenkins Bros., New York, N. Y.
Ludlow Valve Mfg. Co., Troy, N. Y.
Lunkenheimer Co., Cincinnati, O.
Simmons, John, Co., New York City.
Vorhees Rubber Mfg. Co., Jersey City, N. J.
Wolf, Fred, W., & Co., Chicago, Ill.
Wood, R. D., & Co., Philadelphia, Pa.

Veneer Machines.
Coe Mfg. Co., The, Painesville, O.
Titus, E. E., Petersburg, Va.

Ventilators.
Dowman-Dozier Mfg. Co., Atlanta, Ga.
Merchant & Co., Inc., Philadelphia, Pa

Vises.
Reed Mfg. Co., Erie, Pa.

Wagon Builders' Mchy. & Supplies.
Cordesman, Meyer & Co., Cincinnati, O.
Fay, J. A., & Egan Co., Cincinnati, O.

Washers. (Ore and Phosphate.)
Bailey-Lebby Co., The, Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.
McLanahan-Stone Co., Hollidaysburg, Pa.

Watchman's Clocks.
Electrical Material Co., Baltimore, Md.
Imhauser & Co., E., New York City.
Nanz & Co., New York, N. Y.
Waggoner Watchman Clock Co., Grand Rapids, Mich.

Warehouse. (Fidelity.)
Baltimore Fidelity Warehouse Co., Baltimore, Md.

Water Powe .
Roanoke Navigation & Water Power Co., Weldon, N.C.

Water-Wheel Governor.
Replogle Governor Works, Akron, O.

Water Softening Apparatus. (Purifying.)
Scaife, Wm. B., & Sons Co., Pittsburg, Pa.

Water-Wheels and Turbines.
Davis Foundry & Machine Works, Rome, Ga.
Lane Mfg. Co., Montpelier, Vt.
Leffel, James, & Co., Springfield, O.
Norrish, Burnham & Co., Inc., Glen Rock, Pa.
Risdon-Alcott Turbine Co., Mount Holly, N. J.
Smith Co., S. Morgan, York, Pa.
Stilwell-Bierce & Smith-Vaile Co., Dayton, O.
Westinghouse, Church, Kerr & Co., Pittsburg, Pa.
Westinghouse Mch. Co., Pittsburg, Pa.

Water Meters.
Pittsburg Meter Co., E. Pittsburg, Pa.
Worthington, Henry R., New York, N. Y.

Water-Works Supplies.
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
Pomona Terra Cotta Co., Pomona, N. C.
Stevens, H. Sons, Co., Macon, Ga.
U. S. Cast Iron Pipe & Foundry Co., Chicago, Ills.
Wood, R. D. & Co., Philadelphia, Pa.

Weighing Machinery. (Automatic.)
Richardson Scale Co., New York, N. Y.

Well Contractors. (Oil, Artesian, etc.)
Andrews, Perry & Bro., Atlanta, Ga.
Bacon Air Lift Co., New York, N. Y.
Cook Well Co., St. Louis, Mo.
Ford, Isaac H., New York, N. Y.
Hughes Specialty Well Drilling Co., Charleston, S. C.

Well Tools and Supplies.
Andrews, Perry & Bro., Atlanta, Ga.
Bacon Air Lift Co., New York, N. Y.
Cook Well Co., The, St. Louis, Mo.
Ford, Isaac H., New York N. Y.
Hughes Specialty Well Drilling Co., Charleston, S. C.
Kelly & Taneyhill Co., Waterloo, Ia.
Williams Bros., Ithaca, N. Y.

Wheelbarrows and Trucks.
Jackson Mfg. Co., Harrisburg, Pa.
Kilbourne & Jacobs Mfg. Co., Columbus, O.

Whistles. (Chime, Sirens, etc.)
Amer. Stm. Gauge & Valve Mfg. Co., Jam. Plain, Mass.
Crosby Steam Gage & Valve Co., Boston, Mass.
Lunkenheimer Co., Cincinnati, O.

White Lead.
French, Samuel H., & Co., Philadelphia, Pa.

Whitewashing Machinery.
Hook, F. E., Hudson, Mich.
Star Brass Works, Chicago, Ill.

Windlasses.
American Ship Windlass Co., Providence, R. I.

Windmills.
Flint & Walling Mfg. Co., Kendalville, Ind.

Window Guards. (Wire.) [See Wire Goods.]

Wire, Barbed Wire, etc.
Broderick & Bascom Rope Co., St. Louis, Mo.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.
Roebling's, J. A., Sons Co., Trenton, N. J.

Wire. (Brass and Copper.)
Waterbury Brass Co., New York, N. Y.

Wire Cloth. (Iron, Steel, Brass, etc.)
Buffalo Wire Works Co., Buffalo, N. Y.
Caldwell, H. W., & Sons, Co., Chicago, Ill.
Meyers, Fred. J., Mfg. Co., Hamilton, O.
New Jersey Wire Cloth Co., Trenton, N. J.

Wire Goods.
Bolles Iron & Wire Works, J. E., Detroit, Mich
Buffalo Wire Works Co., Buffalo, N. Y.
Dufur & Co., Baltimore, Md.
Eureka Supply Co., Chattanooga, Tenn.
Ludlow-Saylor Wire Co., The, St. Louis, Mo.
Meyers Mfg. Co., The Fred J., Hamilton, O.
New Jersey Wire Cloth Co., Trenton, N. J.

Wire Netting.
Buffalo Wire Works Co., Buffalo, N. Y.
New Jersey Wire Cloth Co., Trenton, N. J.

Wire Rope.
Broderick & Bascom Rope Co., St. Louis, Mo.
Contractors Plant Mfg. Co., Buffalo, N. Y.
Durable Wire Rope Co., Boston, Mass.
Hazard Mfg. Co., Wilkes Barre, Pa.
Lidgerwood Mfg. Co., New York, N. Y.
Roebling's John A., Sons Co., Trenton, N. J.
Trenton Iron Co., Trenton, N. J.

Wire Rope Filler.
Broderick & Bascom Rope Co., St. Louis, Mo.
Ironsides Co., Columbus, O.

Wire Rope Shields.
Ironsides Co., Columbus, O.

Wire Rope Thimbles.
Broderick & Bascom Rope Co., St Louis, Mo.
Jackson Mfg. Co., Harrisburg, Pa.

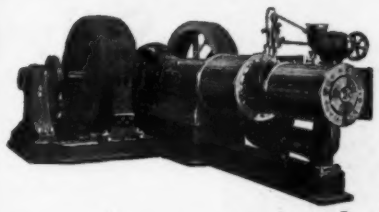
Woodboring Machines. (Pneumatic.)
Rand Drill Co., New York, N. Y.

Woodsplitting Machines.
Fay, J. A., & Egan Co., Cincinnati, O.

Woodworking Machinery.
Chattanooga, Machinery Co., Chattanooga, Tenn.
Coe Mfg. Co., The, Painesville, O.
Cordesman, Meyer & Co., Cincinnati, O.
De Loach Mill Mfg. Co., Atlanta, Ga.
Fay, J. A., & Egan Co., Cincinnati, O.
Gibbes, W. H., & Co., Columbia, S. C.
Hermance Mch. Co., Williamsport, Pa.
Huther Bros., Rochester, N. Y.
Lane Mfg. Co., Montpelier, Vt.
Leland, F. W., Jasper, Tenn.
Miller Oil & Supply Co., Indianapolis, Ind
Moshannon Mfg. Co., Philipsburg, Pa.
Ober Mfg. Co., Chagrin Falls, O.
Root, B. M., York, Pa.
Shimer, Samuel J., & Sons, Milton, Pa.
Smith-Courtney Co., Richmond, Va.
Smith, H. B., Machine Co., Smithville, N. J.
Walke, Henry, Co., Norfolk, Va.
Whitney, B. D., & Son, Winchendon, Mass.

Yellow Metal. (Sheet and Rod.)
Waterbury Brass Co., New York, N. Y.

Zinc.
Merchant & Co., Inc., Philadelphia, Pa.
New Jersey Zinc Co., New York, N. Y.

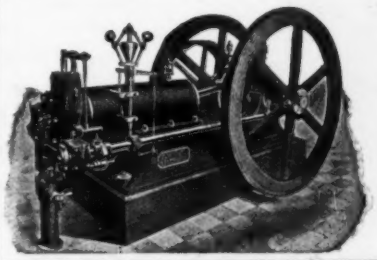


Horizontal and Vertical, Simple and Compound

Engines

of superior quality for electric light and power.

The Ball Engine Co., Erie, Penn.

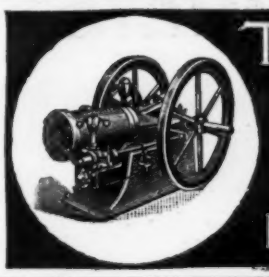


IN SMOKE AND WORTHLESS ASHES

goes a lot of your good money when using steam. You can save from 20 to 50 per cent. by installing a gas engine, such as we build. With us they are no experiment; we guarantee as close regulation as any steam engine. We build engines to meet the special requirements demanded, from 2 H. P. for pumping to 200 H. P. electric lighting engines, and they are as good as is possible to make them, and sell them as cheap as high-class material and skill will permit. They are good enough to sell on the strength of merit rather than price. In buying these engines you do not buy a good cheap engine, but a good engine cheap.

Write for description.

CAPITAL GAS ENGINE CO., Indianapolis, Ind.



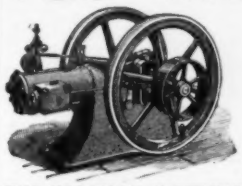
THE "BLAKESLEE" GASOLINE AND ENGINE STANDS SUPREME

LET US TELL YOU WHY

BLAKESLEE MFG. CO. BIRMINGHAM

YOU WANT A GAS ENGINE

That is well-made and first-class in every particular.



THE WATKINS

is IT. Easy to start, simple in operation and exceptionally well finished.

Catalogue with full particulars sent on request.

THE FRANK M. WATKINS MFG. CO. 843-845 W. Sixth St., Cincinnati, Ohio.

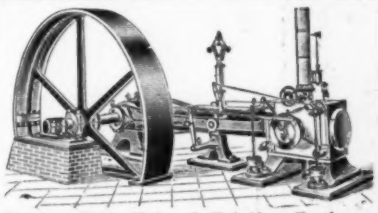
UNION IRON WORKS COMPANY,

SELMA, ALA., U. S. A.

Manufacturers of

Engines, Boilers, Live Rolls and Logging Cars.

LOCOMOTIVE REBUILDING A SPECIALTY.



Corliss, Slide Valve & Hoisting Engines,

BOILERS OF ALL STYLES AND SIZES.

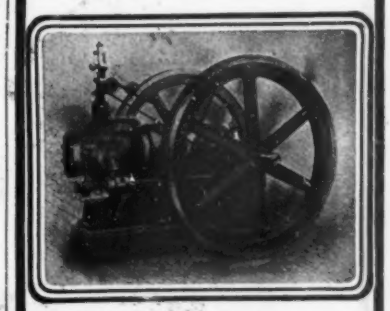
THE MURRAY IRON WORKS CO.

BURLINGTON, IOWA.

Incorporated February 1, 1870.

GAS AND GASOLINE ENGINES.

Can use Gas, Gasoline or both, and can change from one to the other while engine is at full speed. Can change point of igniting while engine is at full speed.



Three main crankshaft bearings. All parts easily accessible.

WRITE FOR CATALOGUE C.

Elyria Engine Company,

Elyria, Ohio.

SMITH-COURTNEY CO.

Richmond, Va.

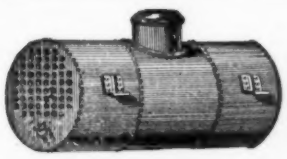
SOUTHERN AGENTS FOR THE

Improved Bates Corliss Engine

FROM 50 TO 1000 HORSE-POWER

THE ENGINE for Cotton Mills and Large Factories.

Also full line of Engines, Boilers, Iron and Woodworking Machinery and Pumps. Largest stock of Railroad, Mine and Mill Supplies in the South.



HARTLEY'S BOILER WORKS,

Boilers, Stand Pipes, Tanks,

Smoke Stacks, etc., etc. MONTGOMERY, ALA.

THE MEANS & FULTON IRON WORKS

HO. PRESTON MEANS, PRES.
JOHN H. MEANS, VICE-PRES.
W. M. FULTON, MANAGER

OFFICE & WORKS 4TH ST. AND 8TH AVE. NORTH. BIRMINGHAM, ALA.
ADDRESS BOX 363 BIRMINGHAM, ALA.

MANUFACTURERS AND BUILDERS OF BOILERS, TANKS, STAND PIPES AND BLAST FURNACES, AND WORKERS IN SHEET IRON AND STEEL. ESTIMATES FURNISHED ON STRUCTURAL WORK.

BOILERS AND ENGINES.

Tanks, Stacks, Stand Pipes and Sheet Iron Work; Shafting, Pulleys, Gearing, Boxes, Hangers, etc. Mill Castings.

Cast every day; work 180 hands.

Lombard Iron Works & Supply Co.

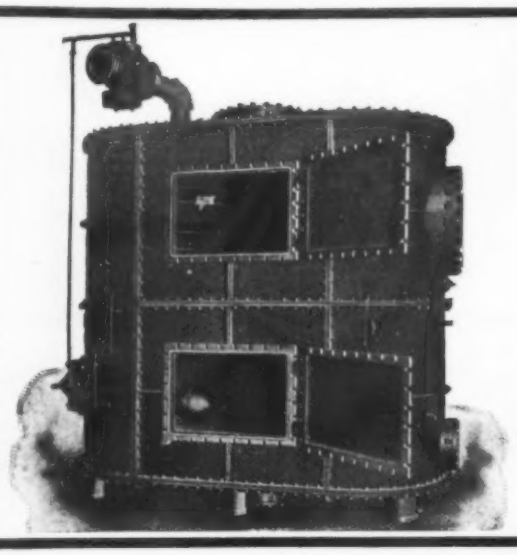
AUGUSTA, GEORGIA.

Gas and Gasoline Engines

COLUMBUS

Send for Catalogue G.

COLUMBUS MACHINE CO.
Columbus, Ohio.



Stilwell's Feed-Water Heater.

This appliance is productive of the greatest possible economy in a steam plant. By its use you can heat six pounds of cold water with one pound of exhaust steam from an initial temperature of say 50° F. right up to the boiling point (or more than nine pounds from 100° F.), and for every 10° thus gained you will save 1% of all the coal used under your boilers; that is, taking water at 50° the saving will be at least 16%, and more likely 19%.

THE STILWELL HEATER

has other advantages—water economy, improved quality of feed supply, increased steaming capacity, decreased wear and tear on boilers, etc.

For further information, address

THE STILWELL-BIERCE & SMITH-VAILE CO.

M-40-403 to 425 Keowee St., DAYTON, OHIO, U. S. A.

BROWN CORLISS ENGINE CO. CORLISS, WISCONSIN.

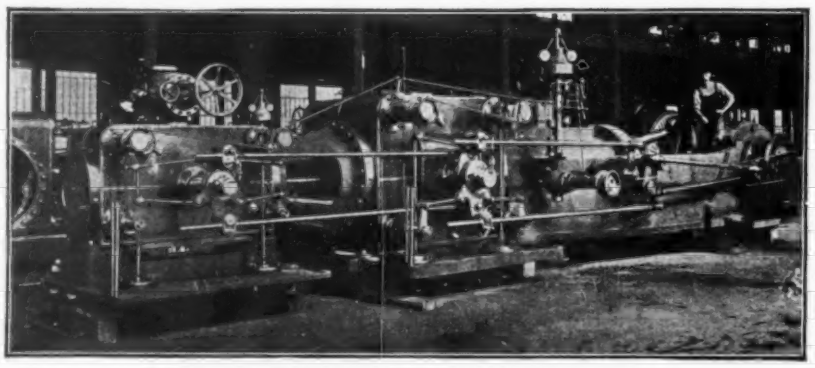
Home Office, CORLISS, WIS.

EASTERN AGENTS:

J. Pierpont & Co., Philada., Pa.
Woolston & Brew, New York, N. Y.
Woolston & Brew, Boston, Mass.
Henry R. Cornelius, 832 Frick Bldg., Pittsburg, Pa.

AGENTS:

Southern Car Mfg. & Supply Co. Beaumont, Texas.
Brown, Beal & Co. San Francisco, Cal.

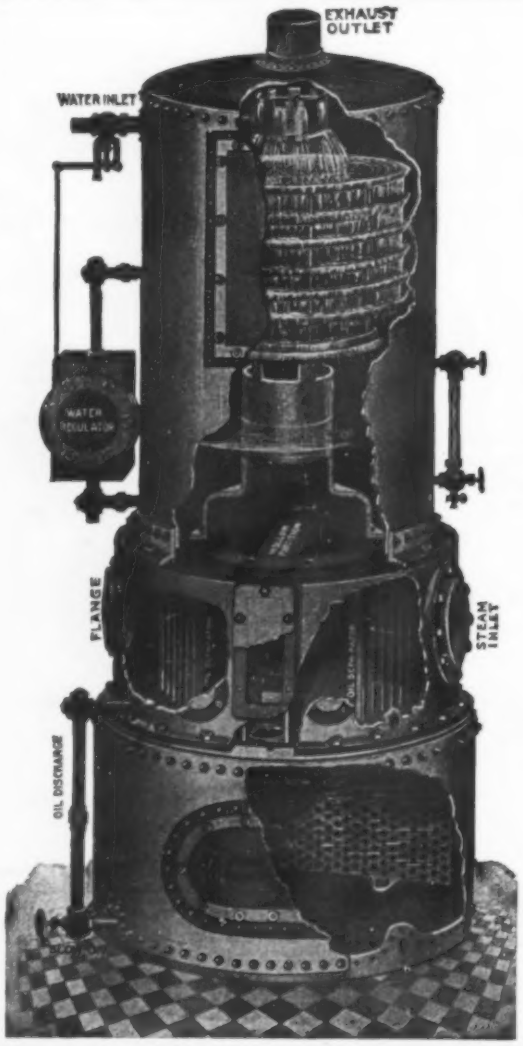


1,000 H. P. Tandem Compound.

...Manufacturers of...

Heavy Duty and Girder Frame CORLISS ENGINES

Rolling Mill and Blowing Engines.



SOLD ON ITS MERITS.

The Cookson Combination Feed Water Heater, Purifier, Filter and Oil Separator.

Maintains constant temperature of the feed water of 206° to 212°.

Heats more water with less steam than any other.

Thoroughly Purifies and Filters the water, passing it to your boilers Pure and Boiling Hot.

The only Heater made separating the oil from the exhaust steam on entering the heater from either exhaust opening; one an oil separator and the other a steam separator, and operating by the steam passing through it in either direction.

Large Filtering Capacity—twice that of the ordinary Heater.

Special Designed Lime Catching Pans. Abundant lime catching surface.

Heater constructed of Best Materials throughout. Finest grade Fittings.

Heaters of all sizes from 50 to 10,000 H. P.

Built in four styles, A, B, C, and D.

You will get *"value received"* for every dollar invested in a "Cookson," besides having the best Heater, Purifier, Filter and Oil Separator that can be devised.

If you have exceptionally bad water to contend with, write us.

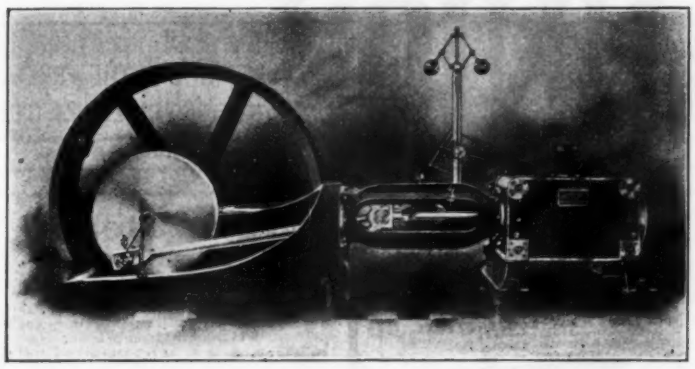
Our Heater Expert will give you the benefit of his experience.

Send for Complete Illustrated Catalog.

BATES MACHINE CO., Joliet, Ill., U. S. A.

SOLE MANUFACTURERS.

LUDWIG & CO., Agents, Atlanta, Ga. SMITH-COURTNEY CO., Agents, Richmond, Va.



MONARCH CORLISS

ALL DESIGNS. QUICK DELIVERIES.

H. N. STRAIT MFG. CO. Adams Street, Kansas City.

THE BABCOCK & WILCOX Co.

85 LIBERTY ST.
NEW YORK
CABLE ADDRESS
NEW YORK
"GLOVEBOXES"
ALL FOREIGN OFFICES
"BABCOCK"

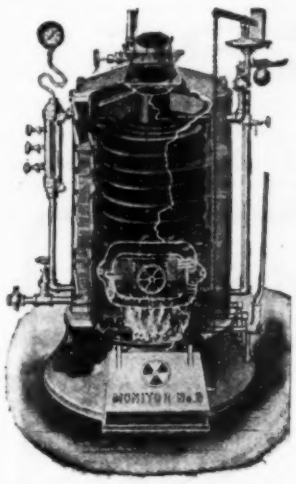
STEAM

WATER TUBE BOILERS

SEND FOR OUR BOOK "STEAM"

BRANCH OFFICES

BOSTON 35 FEDERAL ST.
PHILADELPHIA NORTH AMERICAN BLDG.
SAN FRANCISCO 32 FIRST ST.
CHICAGO 1101 MARQUETTE BLDG.
NEW ORLEANS 315 CARONDELET ST.
PITTSBURGH FRICK BUILDING
CLEVELAND NEW ENGLAND BLDG.
ATLANTA, GA. 617 EQUITABLE BLDG.
MEXICO CITY 7 AVENIDA JUAREZ
HAVANA, CUBA 109½ CALLE DE LA HABANA



Save Coal and Temper

by heating your houses with

Monitor Steam and Hot Water Boilers.

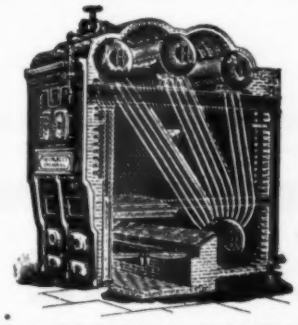
They are at the head of the list.
Write us for prices and other particulars.

Monitor Steam Generator Mfg. Co.

OFFICE AND SALESROOM:
Brewers' Exchange Building,
Fayette and Liberty Sts BALTIMORE, MD.
U. J. BOSSLER, MANAGER.
Home Office and Works, LANDISVILLE, PA.

THE STIRLING BOILER

Four manhole plates, all of which can be removed in a few minutes, give access to the entire interior, and expose every tube, rivet and joint in the boiler.



Its design is the acme of simplicity, and is mechanically perfect. Every pressure part is circular or spherical in form, and is made of wrought metal. *Not one ounce* of cast iron or cast steel.

THE STIRLING COMPANY,

General Offices, Pullman Building, CHICAGO. ATLANTA, Empire Building.

Specify
LUNKENHEIMER
Regrinding Valves
"Last as long as the pipe"

Insure Your Steam Boilers

WITH THE

Maryland Casualty Co.

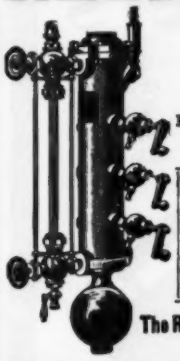
OF BALTIMORE.

Inspections made promptly, regularly and thoroughly by experienced men of proved ability. Agents throughout the United States.

Surplus and Reserve for Policyholders over $2,250,000.00

JOHN T. STONE, President.

RELIANCE



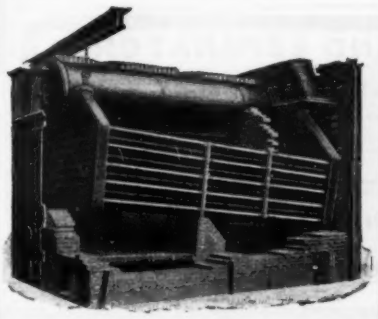
Safety Water Columns

Save Fuel, Repairs, Stoppages. ECONOMY. SAFETY.

We urge our patrons to see that the name "Reliance" is cast on all columns. No other person or corporation is authorized to manufacture Reliance Steam Specialties.

The Reliance Gauge Column Co.
SOLE MFRS.
79 E. Prospect St. CLEVELAND, O.

Water Tube Boilers



Designed for any pressure. Simple in construction, rapid in steam generation. Unimpeded Circulation. Economical in first cost, fuel and maintenance

SEND FOR CATALOG R.

E. KEELER COMPANY,
WILLIAMSPORT, PA.

The National Feed Water Heaters

Save Fuel,
Save Money,
Save Time
AND
Save Your Boilers
BY
Delivering Water to the Boiler at 212° F.

Full amount of heating surface in every heater.

We Manufacture all kinds of

COILS

OF

Iron, Brass and Copper Pipe.

Write for Catalogue.

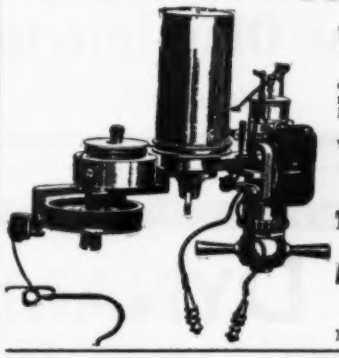
The National Pipe Bending Co.
97 Lloyd Street,
New Haven, Conn.

OIL and LABOR SAVER

IRONSIDES
IMPROVED
Tormay PAT. Oiler
For Mine-Car Wheels and General Purposes.
The Ironsides Company,
COLUMBUS, OHIO, U. S. A.
Good Seller for Supply Houses.

AMERICAN THOMPSON IMPROVED

INDICATOR,



With Electrical Attachment and Ideal Reducing Wheel.

HIGHEST AWARD at Paris Exposition, 1900. The only American Indicator to receive a medal. The gold medal awarded at Pan-American Exposition on Gauges, Pop Valves, Indicators and Engineering Specialties.

We Make GAUGES THAT GAUGE. POPS THAT POP.

THE INDICATORS THAT MADE INDICATORS FAMOUS.

AMERICAN STEAM GAUGE & VALVE MFG. CO.

Address Factory, Jamaica Plain,
NEW YORK Boston, Mass. CHICAGO.

IMPROVED BERRYMAN

Water Tube

FEED WATER HEATER AND PURIFIER.

Its PERFECT CIRCULATION of the water gives the highest degree of heat obtainable with the use of exhaust steam.

Provided with ∩ SHAPED SEAMLESS DRAWN BRASS TUBES and so constructed that it CANNOT LEAK under the highest boiler pressure it is possible to carry.

Built compactly and designed with special reference to meeting the requirements of modern plants, and give continuous efficient service under the most severe conditions.

We also make special heaters for all purposes, for heating oils, acids and other liquids. If you need anything out of the ordinary, our experience is at your command.

BENJ. F. KELLEY & SON, Manufacturers, 91 Liberty St., N. Y. Works, Brooklyn, N. Y.

MANUFACTURED ONLY BY E.M.DART MFG.Co PROVIDENCE R.I.

DART UNION

THE BEST UNION COUPLING MADE IN THE WORLD. NO RUST ON EITHER SIDE.

THE FAIRBANKS CO. Sales Agents.

"Walls"

Our Specialties include Oil Cans, Fillers, Torches, Hand Lamps, Ice Cans, Bells, Gongs, Belt Fasteners, etc. These goods are warranted of the greatest possible durability, and the best obtainable quality.

Everlasting **Oilers** of Brazed Steel, specially designed for Strength. Every joint brazed with Hard Speiter. Red heat or the roughest usage will not cause a leak.

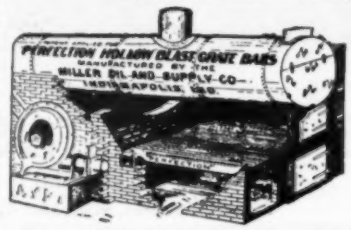
Ask for Catalogue.

The P. Wall Mfg. Co.

Allegheny, Pa.

Would You Like More Steam?

And Like To Pay Less For It?



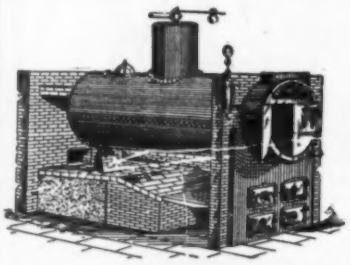
THE PERFECTION HOLLOW BLAST GRATE is what you want. It has a forced draft like a blacksmith's forge, and burns anything you put on it. Wet sawdust, green or frozen chips, edgings or refuse of any kind, have a fuel value on this grate equal to dry wood on common bars. Save the wood, which you can sell, and burn the rubbish you can neither sell nor give away. You get more steam, and you save money. Let us tell you what the Perfection is doing, and why it is better. State size of your grates and get our price. Sold on 30 days' trial; guaranteed to the limit.

Better Write at Once

MILLER OIL & SUPPLY COMPANY

Indianapolis, Indiana

Also Dealers in New and Second-Hand Woodworking and Saw-Mill Machinery



Engines, Boilers, Smoke Stacks, Tanks,

Injectors, Inspirators, Saw Mill Machinery, Shafting, Pulleys, Hangers, Etc.

J. S. SCHOFIELD'S SONS CO., MACON, GA.

There is no record of a FARQUHAR BOILER ever exploding.

ENGINES AND SEPARATORS

The **Farquhar** threshing machinery is the perfected product of the pioneer manufacturers of **Grain Separators** and **Threshing Engines.** It is the most durable and cheapest threshing outfit a farmer can buy. The **Celebrated Ajax Threshing Engines,** made in sizes from 4 h. p. up, have seats, foot brakes, and two injectors. Provided with every approved safety appliance. **Farquhar Separators** have every advantage of capacity, thoroughness of separation, simplicity and durability. Every part thoroughly tested. Made in all styles and sizes. Send for free catalogue of Engines, Threshing Machinery, Saw Mills, etc.

A. B. Farquhar Co., Ltd. York, Pa.

BOILERS

With Rivet Holes Drilled after Plates are Bent and in Position. Tanks and Sheet Iron Works, Engines, Cotton Gins and Presses. Machinery for Fertilizer Works and Phosphate Washers, Asbestos Magnesia Pipe Covering and Magnesia Cement Felting for Boilers, Domes, Steam Piping, etc.

VALK & MURDOCH IRON WORKS, Charleston, S. C.

Jars and Temporary Interruptions to the Water Supply.

The ability to withstand these is what commends to all steam users the . . .

Garfield Automatic Injector.

This Injector is suited to every condition of steam boiler service, whether lifting or taking water under pressure. If the water supply be interrupted the Injector will instantly restart as soon as the cause of interruption is removed. Being a Straightline Injector, dirt or scale in the tubes can be seen and removed without taking the device apart. Each part is made to standard, and can be purchased separately.

Catalogue tells how to operate and price of each part. Also contains sectional views, which illustrate the construction

The Ohio Injector Co.

Wadsworth, Ohio.

RIDGWAY DYNAMO & ENGINE CO.

NEW YORK, Singer Bldg. BUFFALO, Caxton Bldg. BOSTON, Exchange Bldg. WORKS, RIDGWAY, PA. PHILADELPHIA, Girard Bldg. KANSAS CITY, MO. Great West. Mfg. Co., 1221-1223 Union Ave. CHICAGO, Wm. Sharpe, 187 La Salle St.

DYNAMOS (Thompson-Ryan Patents.) 10 K. W. TO 500 K. W.

ENGINES (McEwen Patents.) 10 H. P. TO 1000 H. P.

Both engine and dynamo built in the same shop, all parts being made to gauge and strictly interchangeable. Subjected to the most rigorous tests before shipment. No delays after delivery due to errors, misunderstandings, etc., and all responsibility placed on one builder. Dynamo and engine built especially adapted to each other and to operate as a single unit.

RAILWAY — LIGHT — POWER

Steel Brazed Broad Top

OILERS.

MADE of the best quality heavy sheet steel. Brazed with hard spelter solder, which will not melt at welding heat. Spouts are any length, straight or curved, and interchangeable.

GEM MFG. CO.

Pittsburg, Pa.

ENGINES, BOILERS, SAW MILLS, GINNING MACHINERY

And Kindred Lines Generally.

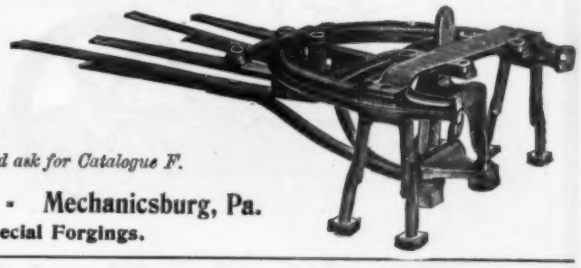
W. H. GIBBES & CO.

COLUMBIA, S. C.

Rear King Bolt Brewster Gear Set No. 8 A.

INTEGRAL HEAD BLOCK PLATE.

The finest Rear King Bolt Gear Set ever produced. The strongest of selling points for your line of vehicles. Furnished all wrought or with malleable parts. All made to fit regular gear woods. No special woods required. Guaranteed not to rattle.



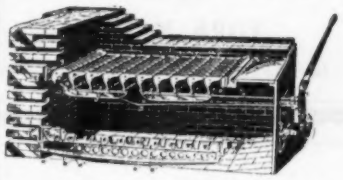
Write for prices and ask for Catalogue F.

THE D. WILCOX MANUFACTURING CO. - - - Mechanicsburg, Pa.

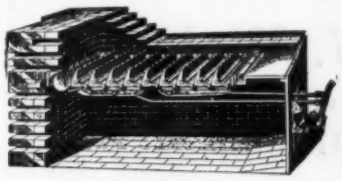
Manufacturers of **Carriage Hardware and Special Forgings.**

McCLAVE'S IMPROVED GRATE and ARGAND STEAM BLOWER For BOILER

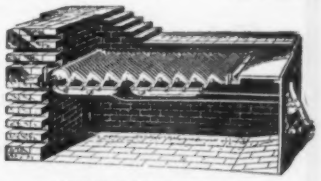
Send for Illustrated Descriptive Catalogue C. and other Furnaces.



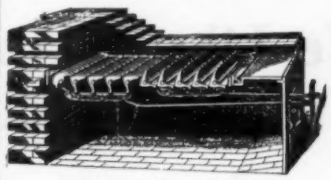
NORMAL POSITION OF GRATE.



WHOLE CUT-OFF MOVEMENT.



SHAKING MOVEMENT.

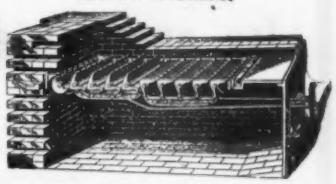


DIVIDED CUT-OFF MOVEMENT.

Argand Steam Blower.

These appliances together combine more valuable features for burning the smaller sizes of hard and soft coal, such as Anthracite, Culm, Birdseye, Buckwheat and Bituminous Slack than any other system; while the Grate alone stands unequalled for burning the larger sizes of these fuels with natural draught. The Argand Blower gives excellent results in burning Spent Tan, Sawdust, Bagasse, Etc.

Cross Sectional View.



DIVIDED CUT-OFF MOVEMENT.

McCLAVE-BROOKS CO., Scranton, Pa.

Contractor's Plant Mfg. Co., Ltd.

MANUFACTURERS OF

STEAM, HORSE and HAND POWER

Hoisting Machines

DERRICK IRON and CONTRACTORS' SUPPLIES.

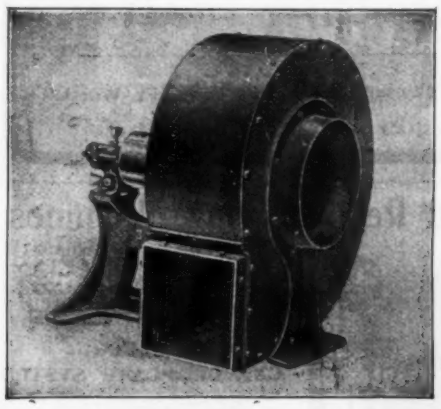
MANUFACTURERS OF WIRE ROPE.

129 Erie Street, Buffalo, N. Y.

Mention this Journal.

DIXIE MANUFACTURING CO.

401 North Street, BALTIMORE, MD.



Exhaust Fans, Exhaust and Blow Piping, Dust Collectors, Automatic Furnace Feeders.

Mechanical Experts in Removal of

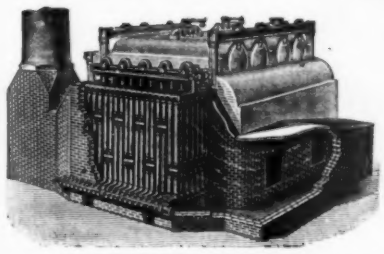
Shavings, Dust, Lint and Odors.

Estimates Furnished and All work Guaranteed.

Heavy Sheet Iron Work a Specialty.

Worrying over current expenses unnecessary when a

Green's Economizer



is in the boiler room. Using waste gases entirely, it keeps the feed-water heated above the boiling point. What that means in boiler repair saving can possibly be best learned from the engineer. Saves in coal 10 to 20 per cent. Other savings explained in our free booklet.

The Green Fuel Economizer Co., Matteawan, N. Y.

SOLE MANUFACTURERS IN THE U. S. A.

Directed Connected Fan and Engine.

A & J STEEL PLATE FANS

Heating, Ventilating, Drying, Etc.

ANDREWS & JOHNSON CO.

Chicago, - - - - Illinois.

The LUDLOW VALVE MFG. CO.

TROY, N. Y., U. S. A.

Manufacturers of Fire Hydrants and Slide Gate Valves of All Sizes and for all Pressures and Purposes.

LUDLOW GOODS ARE RELIABLE.

SPECIFY AND INSIST UPON HAVING THEM.

None are Genuine without Our Name, which appears on every Valve and Hydrant we make and means

STANDARD OF MERIT.

Valves for Extreme High-Pressure Steam, Water, Gas, Oil, Ammonia, etc., a Specialty.

SEND FOR CATALOGUE.

Trade Mark — ALBANY LUBRICATING COMPOUND — on every package

ALBANY GREASE

LUBRICATES EVERYTHING

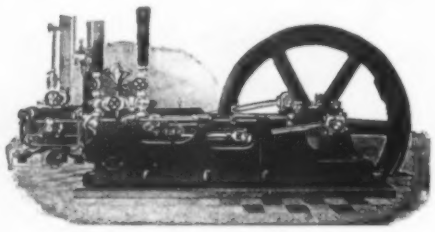
Special Offer: A sample can of grease and one ALBANY GREASE CUP free of charge or expense for testing.

MADE ONLY BY **ADAM COOK'S SONS,** 313 West Street, New York City, U. S. A.
Branch, 31 S. Canal St., Chicago, Ill.

The Detroit Sight Feed Lubricators

not only give better service than other makes, but they last longer and require less repairs. They are of superior design, are extra strong and heavy, and each lubricator is tested at 300 pounds pressure to the square inch before it leaves the factory. Catalogue on application.

DETROIT LUBRICATOR CO., Detroit, Mich.



The Linde Machine

Built By

The Fred. W. Wolf Co.

139 Rees St.,

Chicago, Illinois.

Manufacturers of

Ice and Refrigerating Machinery,

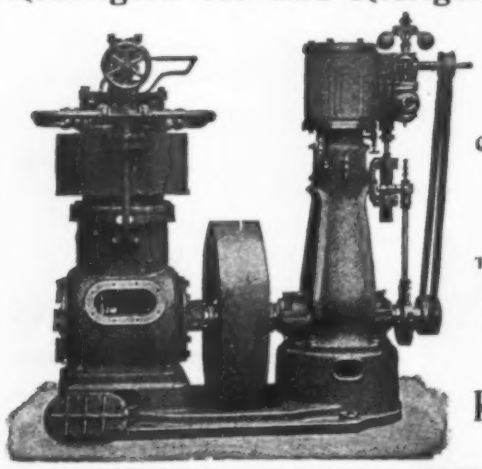
and attendant equipment of the highest quality.

Simplicity of design,
High-Grade and durable construction, with
Extreme Economy in operating expense,
commend the LINDE to the discerning purchaser.
Not high-grade in spots, but good mechanics in every detail.

Literature sent gladly on request.

Branch Offices: Atlanta—Townsend Bld'g, New York—Ft. Worth.

Remington Ice and Refrigerating Machines.



COMPLETE PLANTS INSTALLED AND GUARANTEED : : :

ICE MAKING—CAN OR PLATE SYSTEM

REFRIGERATION—DIRECT EXPANSION OR BRINE SYSTEM

The REMINGTON Ice Machine is the STANDARD Machine of small capacity. Beware of IMITATIONS, buy the ORIGINAL, it is the best.

Manufactured only by

Remington Machine Co.

Wilmington, Del.

According to the Eternal Fitness of Things,

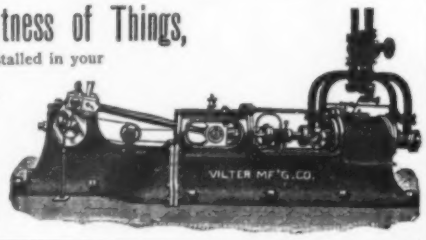
Our machinery should be installed in your

Ice or Refrigerating Plant.

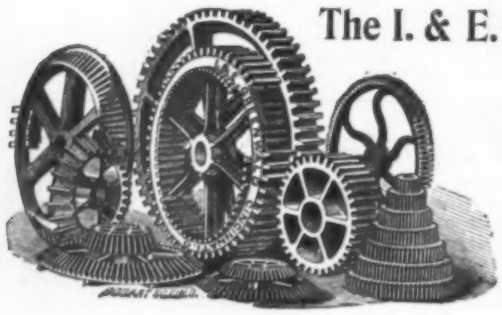
Special features outlined and explained upon request.
We want to be questioned.

THE VILTER MFG. CO.

832 Clinton Street, Milwaukee, Wis.



The I. & E. Greenwald Co.



Engineers, Founders, Machinists and Millwrights.

Steam Engines

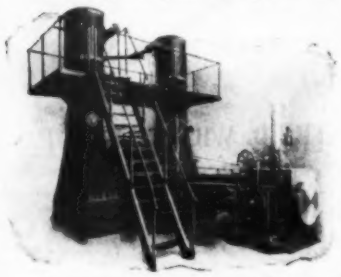
Shafting, Hangers, Pulleys, Sprocket Wheels, Chains, Etc. Headquarters for Mill Gearing of All Kinds and Sizes. Steam Power Plants Complete.

Write for Catalogue.

720 E. Pearl St., CINCINNATI, O.

A Good Reputation is hard to acquire and harder to hold. We acquired ours 30 years ago, and have it still in increased measure.

During the past five years we have sold over 490



Standard York . . Ice-Making Machines.

Each has a daily average capacity of 50 tons of refrigeration.

You can't make any possible mistake if you install York equipment.

Write for descriptive Catalogue 4.

YORK MANUFACTURING CO., YORK, PA.

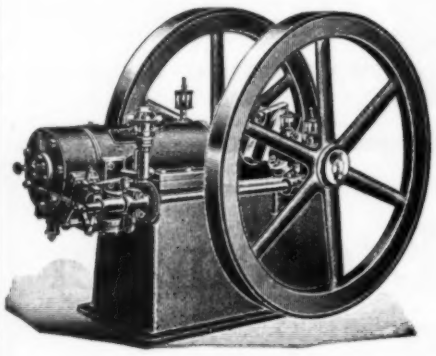
Ice-Making and Refrigerating Machinery and Ammonia Fittings.

We Like to Answer Questions From a Sensible Man

who wants the best cold storage, ice-making or water-cooling machinery, and, particularly, if he happens to have a little bit of room in some corner of a basement or yacht engine-room or hull and wants to do more refrigerating work than can be done by any other machine that will go into twice the space.

Besides refrigerating machinery we make the

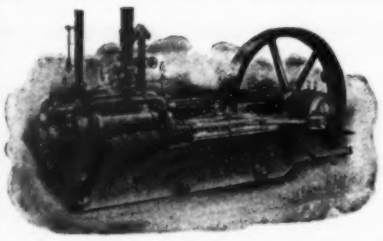
Brown Gas and Gasoline Engine



and it is a good one. It drives refrigerating machines just as well as it runs dynamos, printing presses and other machinery. We like to talk about it, and sell it too, and we usually do everything we like with this engine, for several good reasons.

THE BROWN-COCHRAN COMPANY,

14 Globe Street, Lorain, Ohio.



Ice and Refrigerating Machinery.

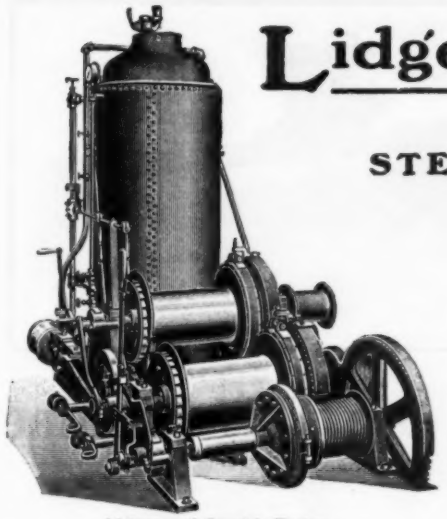
When in the market for the above write us for estimates and catalogue. This cut represents the simplest and most durable compressor on the market. Compare it with others. Nearly 1000 installations in ten years prove the popularity of Barber machines. We devote special attention to small plants. In fact, we were the first in the market with a small machine, and still lead.

A. H. BARBER MANUFACTURING CO.

221 So. Water Street, CHICAGO.

OFFICES:

Townsend Bldg., New York. Dallas, Texas. Los Angeles, Cal.
713 E. First Avenue, Denver, Col.



Lidgerwood Hoisting Engines

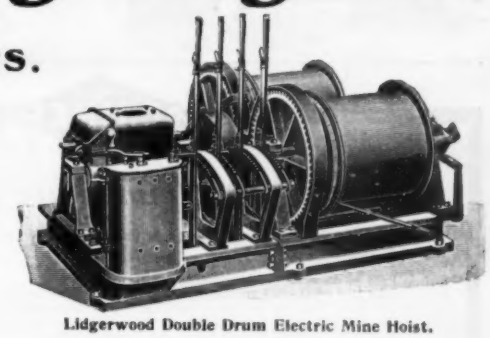
(STANDARD FOR QUALITY AND DUTY.)

STEAM AND ELECTRIC HOISTS.

Over 21,000 in Use.

Cableways, Hoisting and Conveying Devices for Mining, Quarrying, Logging, Dam Construction, etc.

SEND FOR CATALOGUES.



Lidgerwood Double Drum Electric Mine Hoist.

Lidgerwood Derrick Engine.

Lidgerwood Mfg. Co., 96 Liberty Street, New York.

Chicago. Cleveland. Philadelphia. Portland, Ore. Atlanta. Boston. New Orleans. Pittsburg.

Incorporated 1866. Charter Perpetual.

HARTFORD STEAM BOILER INSPECTION AND INSURANCE CO. HARTFORD, CONN.

Issues Policies of Insurance after a careful Inspection of the Boilers, Covering all Loss or Damage to Boilers, Buildings and Machinery, and Damage resulting from Loss of Life and Personal Injuries Caused by Steam Boiler Explosions.

Full information concerning the plan of the Company's operations can be obtained at the

COMPANY'S OFFICE, HARTFORD, CONN., or at any Agency.

J. M. ALLEN, President. W. B. FRANKLIN, Vice-Prest. F. B. ALLEN, 2d Vice-Prest.
J. B. PIERCE, Sec. L. B. BRAINERD, Treas. L. F. MIDDLEBROOK, Asst. Sec.

GENERAL AGENTS IN THE SOUTH.		OFFICES.
LAWFORD & McKIM,	BALTIMORE, MD.,	Chamber Commerce.
C. C. GARDINER,	ST. LOUIS, MO.,	319 N. Fourth Street.
LOUIS V. CLARK & CO.,	BIRMINGHAM, ALA.,	2021 First Avenue.
W. S. HASTIE & SON,	CHARLESTON, S. C.,	44 Broad Street.
PETER F. PESCUD,	NEW ORLEANS, LA.,	818 Gravier Street.

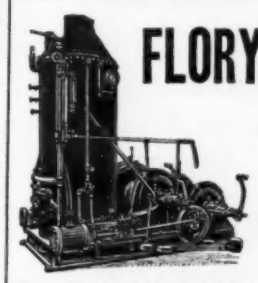
The Hayward Excavating Dredging Bucket,

"Orange Peel" and "Clam Shell" Buckets.

Dredges, Excavators, Traveling Derricks, Railroad Excavators, Derrick Fixtures.

APPLIANCES FOR HANDLING COAL AND ALL MATERIALS.
Send for New Illustrated Catalogue.

The Hayward Company,
97 Cedar Street, New York.



FLORY Hoisting Engines

Specially adapted for Contractors, Pile Driving Quarry and Mine Duty.

Cableways and Conveying Machinery a specialty.

Slate Mining and Working Machinery—a complete line.

S. FLORY MFG. CO., Bangor, Pa

"SOLVAY" CHLORIDE OF CALCIUM

SOLID AND FLUID.

The Best Dryer for Air in Cold Storage Houses.
Makes the Strongest Ice Machine Brine for the Least Money.

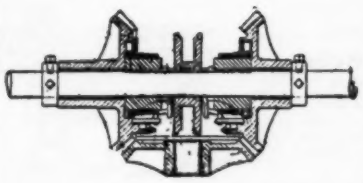
Send for Calcium Circular and Prices.

CARBONDALE CHEMICAL CO., Carbondale, Pa.

New York Office, 141 Broadway. Pittsburg, 727 Park Building.
Boston Office, 544 Tremont Bldg. Chicago, 61 Portland Bldg.

High-Power Friction Clutches,

(Lindsay Patents.)



REVERSING GEAR.

These clutches are different in principle from anything on the market. They are a mechanical exemplification of the old saying of the sailors, **"Three Turns and a Half-Hitch Will Hold The Devil."** Will transmit one to 10,000 H. P., and are instantaneous and shockless in action.

COIL CLUTCH MANUFACTURING CO., Inc.
45 Broadway, NEW YORK.

Frick Company,

Waynesboro, Pa.
New York Office, 39-41 Cortlandt St.

ICE MAKING AND REFRIGERATING MACHINES.

Corliss Engines.

Condensing, Non-Condensing and Compound.

Steam Boilers, Traction and Portable Engines, Saw Mills, &c.

Catalogue on application.

THE HENRY WALKE CO.

NORFOLK, VA.

Erie City Iron Works Engine and Boilers,

Lodge and Shipley Lathes, Bickford Radial Drills, Cincinnati Shapers, Cincinnati Planers, Cincinnati Machine Tools, Vertical Drills, Cincinnati Milling Machines. Also High-class Wood-Working Machinery, Pumping Machinery, Pneumatic Machinery.

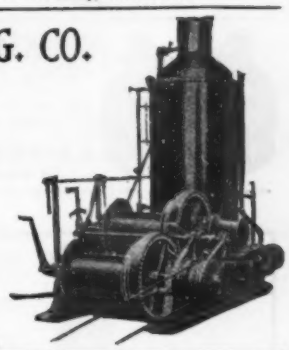
RAWSON & MORRISON MFG. CO.

CAMBRIDGEPORT, BOSTON, MASS.

Standard and Eastern

HOISTING ENGINES,

CABLEWAYS and AUTOMATIC COAL HANDLING MACHINERY.

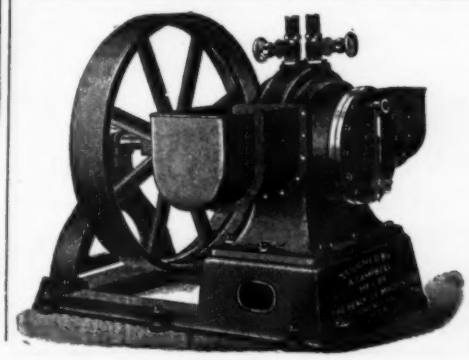


NEW YORK OFFICE, No. 11 Broadway. CHICAGO, 48-50 Lake St.
BALTIMORE, 707 Maryland Trust Bldg. MONTREAL, CAN.
WRITE FOR CATALOGUE C.

Birmingham Boiler Works.

Builders of Stand Pipes, Tanks, Stacks and complete Furnace Plants. We also build and put in operation complete plants for the manufacture of oils from pine woods.

W. N. CRELLIN, Prop.
Ave. A, Powell Avenue and 24th Street,
BIRMINGHAM, ALA.



Our Improved **Results Guaranteed.**

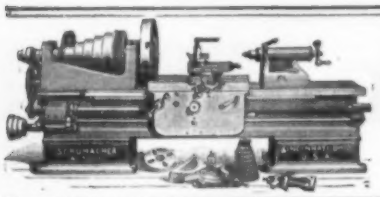
Compression Ice AND Refrigerating Machines

are Economical and Simple in Operation, built from 1 ton up to 100 tons capacity.

"Single and Double Acting."

The machines now in operation prove it to be the most successful machine on the market. Write for information.

Healy Ice Machine Company. Chicago, Ill.



SCHUMACHER & BOYE,

Engine Lathes,

Cincinnati, Ohio.

TRADE MACHINERY MARK

Ready for Immediate Shipment.

We have the following new tools in stock ready for immediate shipment to any part of the country.

Two 38 in. x 20 ft. New Haven Engine Lathes.
One No. 4 Brown & Sharpe Universal Milling Machine.
One 6 ft. Fosdick Machine Tool Co. Full Universal Radial Drill.
One 36 in. x 22 ft. Schumacher & Boye Triple Geared C. R. Engine Lathe.
One 26 in. x 48 in. x 16 ft. McCabe Double Spindle New Style Engine Lathe with Geared Face Plates.
One 24 in. x 16 ft. Draper Engine Lathe with Triple Gears and T. A.
One 28 in. x 16 ft. Draper Engine Lathe with Triple Gears, C. R. and T. A.

All Kinds of Machine Tools and Machinery Supplies.

Write today for our Catalogue.

BAIRD MACHINERY CO.

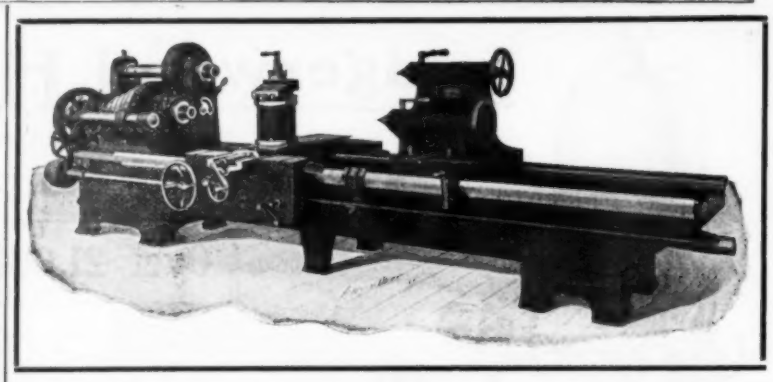
121-125 Water Street, PITTSBURG, PA.

4-FT. BRAKE.

Heavy Bending Brakes,
Cornice Brakes,
Corrugating Machines,
Crimping Rolls,
Foot and Power.

Curved Moulding Mach., Presses, Dies and Shears.

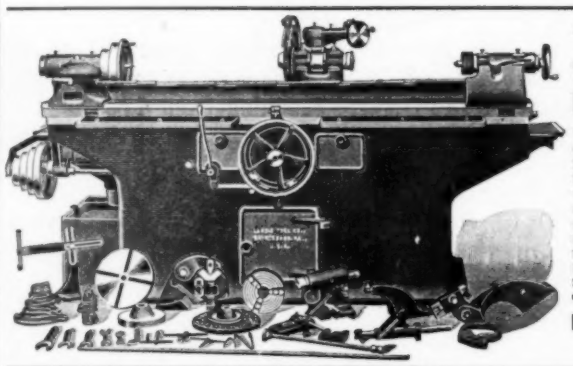
THE J. M. ROBINSON MFG. CO.
Cincinnati, Ohio.



If You Could See This Machine

This New Heavy Pattern 26-48" Double Spindle Lathe of mine, it would be one of the easiest things in the world to convince you of its all-around usefulness and its special adaptability to many of your manufacturing requirements. You can't help being favorably impressed by it, just as it stands here on my salesroom floor, and if you could see it at work in some of the big shops where it is in use, that would settle the matter. I think there must be one of them in your neighborhood, and if you'll write me, I'll tell you where to find it. I want you to talk to the lathesman about it, as well as to the owner and the shop foreman. It hasn't a single weak point to be concealed or excused, and the more searching you make your investigation the better I shall be pleased. Of course, I should be glad of an opportunity to talk with you about it personally, and I hope you will come to see me when you are next in New York.

I. J. McCABE, 14 Dey Street, New York.



A valuable aid in machine shop practice.

The Landis Universal Grinder

This machine is adapted to grinding, Spindles, Shafts, Cones, Sides of Saws, and Plates. All work carried by a chuck or face plate, internal or external, and a large variety of parts such as is necessary to fini h in a machine shop or tool room. A few pointers in our catalogue.

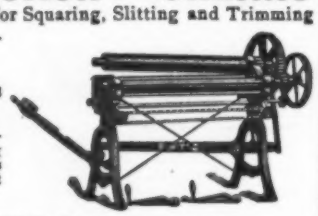
Landis Tool Co.
Waynesboro, Pa.

COMBINED PUNCH and SHEARS

Different styles for Squaring, Slitting and Trimming
All sizes. Automatic Self-Opening

Bending Rolls
(revolutions)

Also Angle Iron Bending Rolls, Squaring Shears, etc., machines for working Sheet Metal.



BERTSCH & CO.
CAMBRIDGE CITY, IND

The Bailey-Lebby Co.

MACHINERY and SUPPLIES.

AGENTS FOR

Lodge & Shipley Lathes
Cincinnati Milling Machines
Cincinnati Shapers
Cincinnati Planers
Cincinnati Upright Drills
Bickford Radial Drills

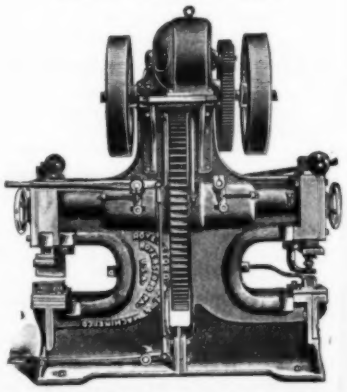
A line of good, reliable tools.

CHARLESTON, S. C.

Try The B-L Co. Anti-Friction Babbitt.

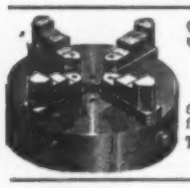
Royersford Punch and Shears

Combined and Single.
Motor or Belt Drive.



We build a full and complete line of these Tools. Adapted for all uses. Ask us about them. Catalogue free.

Royersford Foundry & Machine Co.
Royersford, Pa., U. S. A.



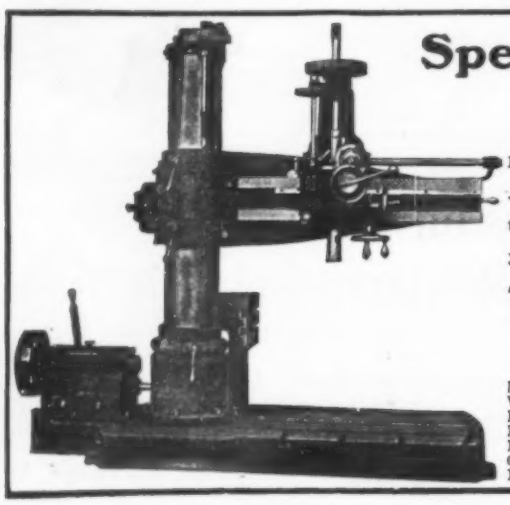
SKINNER Lathe, Drill & Planer CHUCKS.

We are pleased to mail 6"x9" Illustrated Catalog free.

The SKINNER CHUCK MFG. CO.
New Britain, Conn.

CHAS. LEFFLER & CO.
49-61 Clymer Street,
BROOKLYN, N. Y.

PRESSES, DIES AND TOOLS.
SPECIAL MACHINERY.



Speeds and Feeds on the New Bickford Radial

The speeds are 16 in number, ranging in geometrical progression from 17 to 267 revolutions per minute.

The feeds are 8 in number, ranging in geometrical progression from .007 to .064 inch.

Each Speed and Feed can be obtained instantly by a mere shifting of the levers.

Send for Booklet "56 Points of Vantage;" it will tell you how to cut your drilling costs.

The Bickford Drill & Tool Company,

CINCINNATI, OHIO, U. S. A.

AGENTS. J. H. McArdle, New Orleans, La. Echols-Smith Hardware Co., Birmingham, Ala. The Fairbanks Co., Baltimore, Md. Georgia Supply Co., Savannah, Ga. W. E Shipley Philadelphia, Pa. Prentiss Tool & Supply Co., New York, Buffalo and Boston. Brown & Zortman Machinery Co., Pittsburgh, Pa. Marshall & Huschart Machinery Co., Chicago, Cleveland and Cincinnati. J. W. Wright & Co., St. Louis, Mo. Henshaw, Bulkley & Co., San Francisco and Seattle, Wash. Robinson & Cary Co., St Paul, Minn. Scott Supply & Tool Co., Denver, Col. The Henry Walke Co., Norfolk, Va.

Engine Lathes, 16 in. to 24 in. Swing.

Strictly High-Grade Lathes,
with all modern improvements. Great solidity and convenience and ease of operation.

GREAVES, KLUSMAN & CO.
Cincinnati, O., U. S. A.

WE MAKE A SPECIALTY OF

Contract Work for Light, Accurate Machinery

FROM SPECIFICATIONS AND DRAWINGS.

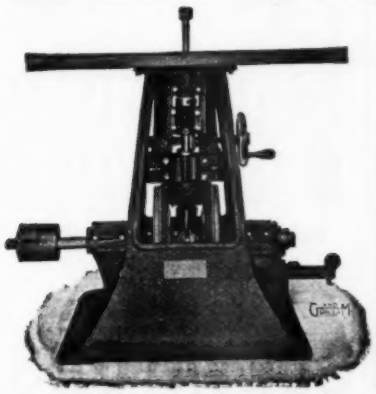
Model Making, Die Making, Screw Machine Work, Gear Cutting,

Special Machine Designing, Metal Pattern Work, Cam Cutting,

Instrument Work.

Eclipse Machine Co. 267 St. Clair Street, **Cleveland, O.**

We have Complete Equipment for Surface and Universal Grinding.

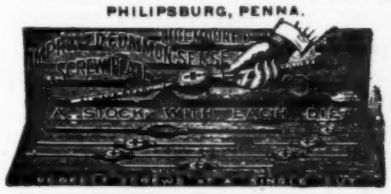


Single Spindle Reversible Shaper.

Single and Double Spindle Shapers, Combination Shaper and Carver, Cutter Heads, Wing Cutters, etc. Designers of Special Machinery.

Moshannon Manufacturing Co.

PHILIPSBURG, PENNA.



Our Catalog of

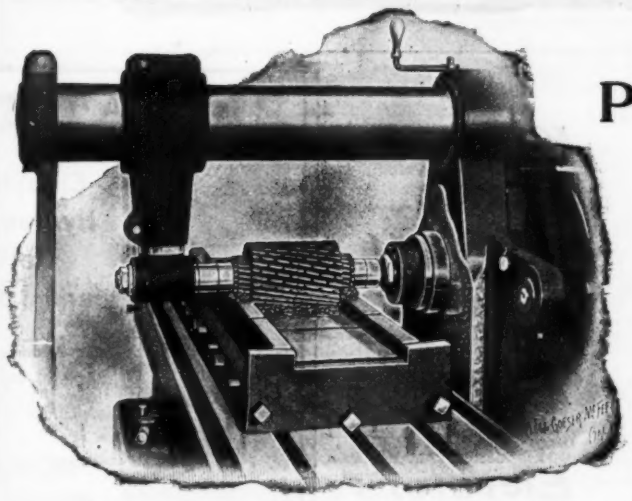
Screw Plates,

Taps, Dies and Reamers,

will interest you.

A. J. Polk & Son, Millersburg, Pa.

If you wish to keep posted on the progress of the South, read the Manufacturers' Record. Price $4 a year.



The Productiveness of Cincinnati Geared-Feed Millers

is thoroughly demonstrated by this one operation of finishing cast iron bearing surfaces 7⅞ in. wide by 15-16 in. deep to gage.

The largest cutter in the gang is 4½ in. diameter, 6 in. face. Cutting speed of 47 feet.

The roughing cut takes out about 3-32 in. all around to remove scale at a table travel of 3 in. per minute.

Don't you think it requires a powerful feed drive to pull a cut like that and an exceedingly rigid machine to stand such a strain? Both these features are characteristic of Cincinnati Millers.

The finishing cut removes about .010 in. all around at a cutting speed of 47 feet and a table travel of nearly 1½ in. per minute.

These pieces are 7 in. long; the finished surface is of irregular outline 7⅞ in. wide by 15-16 in. deep.

It takes just 9½ hours to mill a lot of 24 of these castings.

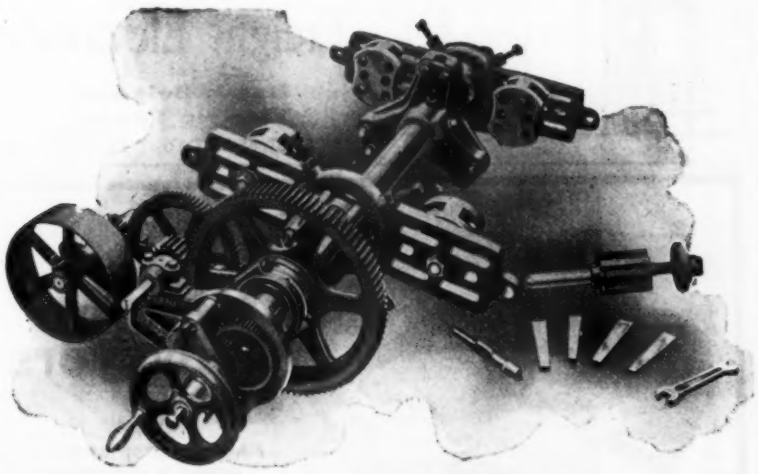
Don't you think it would pay you to do some of your work on a "Cincinnati" Miller?

Ask for our Pamphlet Series "D" Examples of Rapid Milling.

THE CINCINNATI MILLING MACHINE CO.

Cincinnati, Ohio, U. S. A.

EUROPEAN AGENTS—Schuchardt & Schutte, Berlin, Cologne, Vienna, St. Petersburg, Brussels and Stockholm. Adolph Janssens, Paris. Chas. Churchill & Co., London, Birmingham, Manchester, Newcastle-on-Tyne, Glasgow. The Niles Tool Wks. Co., 39 Victoria St., London, S. W.



PORTABLE BORING BAR.

Adapted to general boring. Can be used on Engines, Steam Hammers, Pumps, Air Compressors, etc., while they are in place. Can be arranged to bore in cramped places. Strongly built, efficient and durable. Can be driven by power or hand.

H. B. UNDERWOOD & CO., **Philadelphia, Pa.**

L. B. Flanders Machine Works.

BARNES'

Upright Drills

COMPLETE LINE

Bench, Sensitive, Multiple, Series, Stationary and Sliding Head,

BACK GEAR and WITHOUT BACK GEAR.

This cut represents our new 26 in. Sliding Head Back-Geared Drill, with Combined Lever, Wheel and Power Feed; automatic stop and quick return lever. The most rapid and most convenient working drill on the market today.

Write for illustrated catalogue.

SOLE MANUFACTURERS,

W. F. & JOHN BARNES CO.

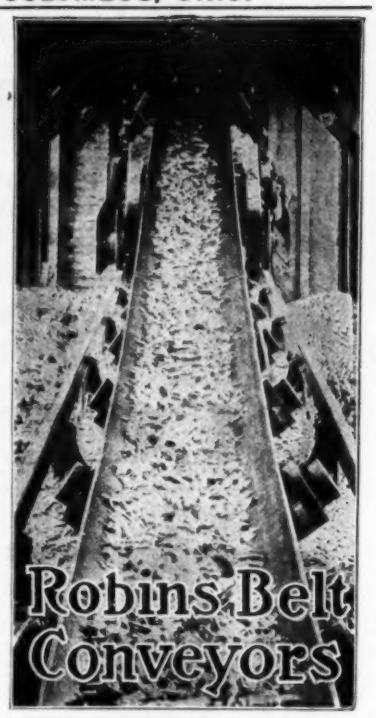
221 Ruby Street, ROCKFORD, ILL.

CAREY MACHINERY & SUPPLY CO.

AGENTS, Baltimore, Md.

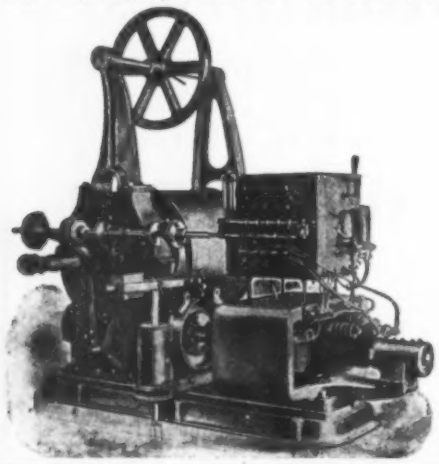
POWER TRANSMISSION APPLIANCES

TRAVELING AND JIB **CRANES** THE CASE MFG. COMPANY, COLUMBUS, OHIO.



Robins Conveying Belt Co.
19-22 Park Row, N. Y. City.

ELEVATORS

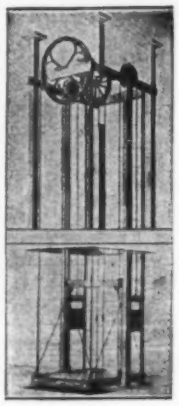


The Kinkade & Liggett Co.

COLUMBUS, O.

Elevators OF ALL KINDS

ELEVATORS



Electric, Hydraulic, Belt and Hand

For Passenger or Freight Service.

Write for Circular 16.

AMERICAN MACHINE CO., Louisville, Ky.

FREIGHT

ELEVATORS,

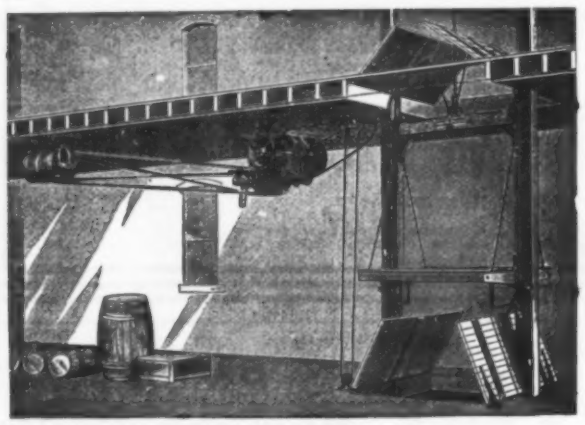
Hand and Belt Power.

POWER HOGSHEAD SCREWS.

THE J. B. WESTBROOKS FOUNDRY AND MACHINE CO.

DANVILLE, VIRGINIA.

General Founders and Machinists.



INDEPENDENT OF ANY TRUST

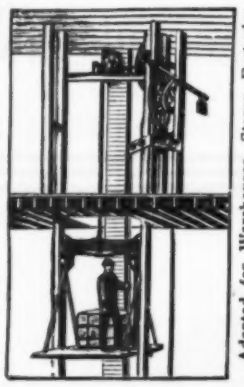
Belt Power Elevator

COMPLETE WITH OUR NEW "BELT-POWER WINDING APPARATUS"

They can be built with any size platform and to lift almost any load. Automatic hatch doors are provided for each floor when desired. Write for Illustrated Catalogue.

PARK MANUFACTURING CO., CHARLOTTE, N. C.

BATES' Hand Elevators.



Adapted for Warehouses, Stores, Factories, Hotels, Public Institutions, and every place where merchandise, &c., is transferred from one story to another.

JAMES BATES' SONS, Successors to JAMES BATES, Corner Pratt and President Streets, BALTIMORE, MD.

Freight Elevators

FOR

Hand, Belt and Electric Power.

PARKHURST BROS. & CO., Indianapolis, Ind.

THE J. W. REEDY ELEVATOR MFG. CO.

OVER 15,000 IN OPERATION THROUGHOUT THE WORLD.

PASSENGER AND FREIGHT **ELEVATORS**

83-85-87-89-91 ILLINOIS STREET, 120-122-124-126 INDIANA STREET, CHICAGO.

ELECTRIC STEAM HYDRAULIC BELT HAND

MARYLAND FOUNDRY & MACHINE CO.

BALTIMORE, MD.

Manufacturers of Passenger and Freight

ELEVATORS.

THE HAVEN ELEVATOR CO.

High Service Elevators, Passenger, Freight, Hydraulic Electric, Belt and Hand Power. Write for Estimates

CINCINNATI, O.

HENRY B. NEWHALL,

Only two parts. Used with regular lag screws of any length.

DIAMOND EXPANSION BOLT

for fastening all kinds of ornamental iron work, railings, fire escapes, electrical work, &c., to brick, stone or any kind of masonry.

9-15 Murray St., NEW YORK.

JEFFREY Elevators, Conveyors

FOR

MILLS, FACTORIES, MINES, POWER HOUSES.

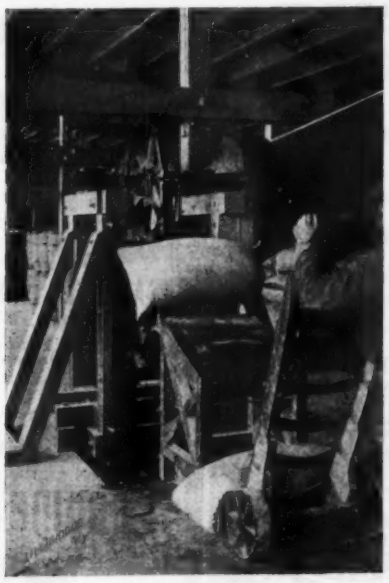
SEND FOR CATALOGUE.

Address

THE JEFFREY MFG. CO.

COLUMBUS, OHIO, U. S. A.

NEW YORK. DENVER.

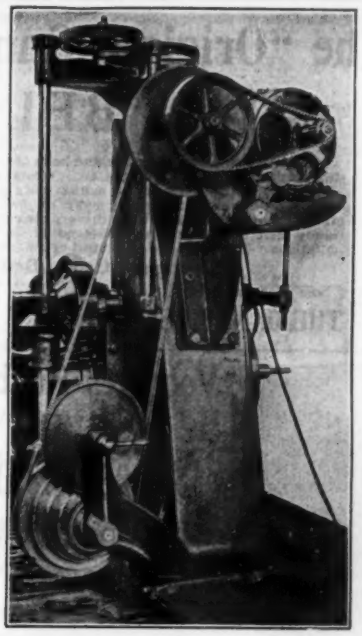


LINK-BELT ELEVATORS, CONVEYORS

For Manufacturing Plants.

Probably every manufacturing plant has need for Link-Belt Methods in one or more of its departments. We have practically a distinct type for every problem to be solved—sack and barrel elevators (as shown in the illustration), coal and ash handling machinery, conveyors for bulk materials, packages, etc., etc.

Write for catalog.



RENOLD SILENT CHAIN

For Machine Tools.

We have been very successful in replacing belt drives with Silent Chain. The illustration shows a motor-driven Floor Boring Machine which has been so altered. Note the convenience and saving of space in applying the motor.

Silent Chain book "E" sent on request.

LINK-BELT ENGINEERING COMPANY,

Nicetown, PHILADELPHIA. 49 Dey St., NEW YORK. Park Bldg., PITTSBURG. Sorrel Bldg., SAVANNAH.

LINK-BELT MACHINERY COMPANY,

CHICAGO, ILLINOIS.

Otis Elevators

Hydraulic
Electric
Steam
Belted

Passenger or Freight

Every Method of Control

The name Otis in connection with an Elevator is a guarantee of excellence

Otis Electric Sidewalk Hoist

We invite inquiries from those contemplating the installation of a sidewalk elevator, or those desiring to change from a slow and cumbersome hand-hoist to an up-to-date economical power-hoist.

Otis Elevator Company New York Office 17 Battery Place

Branch Offices throughout the Country

ELEVATORS.

Passenger and Freight.

HYDRAULIC. ELECTRIC. **16,000 SOLD.** BELT. HAND.

MORSE, WILLIAMS & CO.

PHILADELPHIA. BALTIMORE. ATLANTA.

From a recent purchaser of the Morse Belt Power Freight Elevator operated by reversing motor and controller: "The elevator is working perfectly. We are highly pleased with the elevator and machinery."

Passenger and Freight

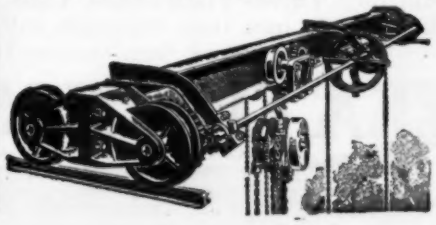
ELEVATORS

Hydraulic, Electric, Steam, Belt Power, Hand Power.

Safety, Speed, Simplicity, Strength, Smooth and Easy Operating.

THE LOUISVILLE ELEVATOR CO. *Louisville, Ky.*

NEVER A STOP--NEVER A BREAK



Never even needed attention of any kind for years except occasional oiling.

SPEIDEL'S TRAMWAYS, TROLLEYS AND TRAVELLING CRANES

Stand alone for such records.

Booklet gives the secret FREE.

J. G. SPEIDEL, READING, PA.

The "Original Gandy"

STITCHED COTTON DUCK **BELTING.**

For Strength, Traction Power and Durability it is without an equal.

Specially adapted to places where belts are exposed to water, heat, steam, oils, atmospheric changes, etc. Costs about one-half as much as the best leather belt on the market—has greater lasting qualities and will outwear any other make of belt. It is used with the greatest satisfaction as a main driver, conveyor or carrier. Give the Gandy Belt a trial and be convinced of its high merit. Beware of imitations. The real article stamped every ten feet,

"Original Gandy Belt."

Sole Manufacturers,

THE GANDY BELTING CO., Baltimore, Md.

Voorhees Rubber Mfg. Co.

JERSEY CITY, N. J.

Rubber Belting, Hose,

Packings, Valves, Mats, Mattings, Etc.

Rubber Lined Cotton Mill and Fire Hose.

We manufacture only the highest grades.

"Goods Bearing Our Brands Are Always Guaranteed."

Driving, Conveying, Elevating

EACH LEVIATHAN BELT

IS MADE ON HONOR, AND STANDS FOR

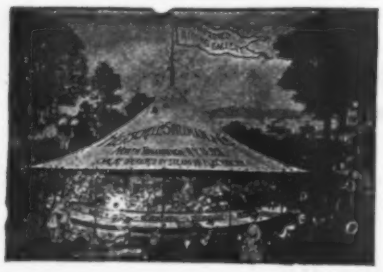
Greatest Power, Durability, Economy

Wherever Run—Wet or Dry.

MAIN BELTING COMPANY,

1219-1241 Carpenter Street, Philadelphia. 55-57 Market Street, Chicago.

BOSTON NEW YORK BUFFALO



YOU WANT

THAT TONAWANDA

MERRY-GO-ROUND BIGGEST MONEY MAKER

ON EARTH.

HERSCHELL, SPILLMAN & CO.

162-166 SWEENEY STREET,

North Tonawanda, NEW YORK.

For any information about

CAROUSELS and all MERRY-GO-ROUNDS

as to Prices, Sizes and Terms, Address

P. C. McINTIRE & CO., Charlotte, N. C.

Agents for following States: Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Kentucky and Tennessee.

DID YOU EVER TRY

MEIER'S BELTING?

How do you know it is not

THE BEST?

Made of Oak-Tan Leather. TRY IT.

JOSEPH MEIER'S SONS,

Factory: Newark, N. J. 49 Dey Street, N. Y.

ESTABLISHED 1883.

ALWAYS RELIABLE

BALTIMORE BELTING CO. OAK TANNED BELT MAKERS BALTIMORE LEATHER BELTING

"As good as the BEST MATERIALS, EXPERIENCE and PRACTICAL & EXPERT BELTMAKERS can produce."

WRITE FOR SAMPLES & PRICES

6 E. LOMBARD ST. BALTIMORE, MD.

"Camel" HAIR BELTING.

Rossendale-Reddaway Belting & Hose Co.

NEWARK, N. J.

ALEXANDER BROS.

BEST OAK BELTING.

PHILADELPHIA.

GILBERT WOOD SPLIT PULLEYS

SAGINAW MANUFACTURING CO.

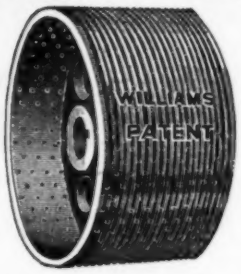
Saginaw, Michigan, U. S. A.

New York Branch, - 44 Dey Street.
Chicago Branch, 35 S. Canal Street.

Sales Agencies in all the Principal Cities.
Cable Address: ENGRAVE, A B C & Lieber's Codes.

THE ONLY

Pneumatic Pulley.



M. F. Williams Mfg. Co.

9th and Montgomery Sts.

ST. LOUIS, MO.

EASY MONEY

Can always be made with one of our Steam Merry go Rounds. Send for circulars.

NORMAN & EVANS,

Lockport, New York.

MACHINES ALWAYS ON HAND.

COTTON-BLOOM

Sewed Canvas Belting

FOR IN OR OUTDOOR USE.

Equals Leather Belt · Half The Price.

Made by an entirely New and Original Process. Will not stretch any more than leather and is equally as strong and durable; a trial will convince you.

SAMPLES AND SPECIAL DISCOUNTS ON APPLICATION.

ENDLESS BELTS A Specialty.

WHITEHURST BELTING CO., BALTIMORE, MD.

EUREKA FIRE HOSE

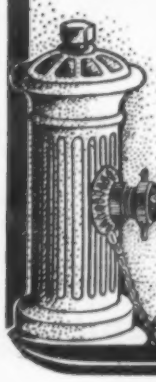
We are the Original Manufacturers of

SEAMLESS RUBBER-LINED

COTTON FIRE HOSE.

Also the Celebrated Brands of

Eureka Mill Hose, Eureka Underwriters' Linen, Eureka Garden Hose, Eureka U. S. Brand Linen Hose, Plain and Rubber Linen, Trojan Mill Hose, Gem Garden Hose.



EUREKA FIRE HOSE CO. 13 Barclay St. NEW YORK.

Agencies at Philadelphia, Pa., Charlotte, Greensboro, N. C., Atlanta, Ga., Memphis, Tenn., and New Orleans, La.

MERS ADV BUREAU N.Y.

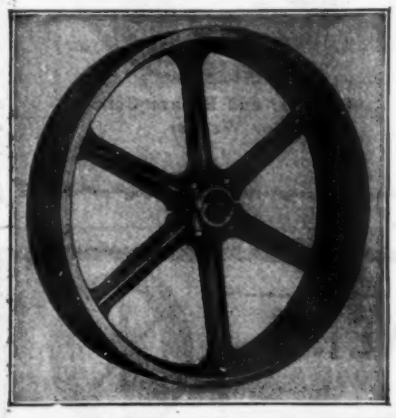
The Belt for Service

A High-Grade Stitched Rubber Belt MANUFACTURED BY

BOSTON BELTING CO.

James Bennett Forsyth, Gen. Mgr. Makers of **Mechanical Rubber Goods.**

BOSTON, 256 Devonshire St. NEW YORK, 100-102 Reade St. BALTIMORE, 26 Light St. ATLANTA, 40-46 S. Forsyth St. NEW ORLEANS, 404-6 Carondelet St.



Pressed Steel Center, Wood Rim Pulley,

Combining all of the good features of both all-steel and all-wood pulleys without the defects of either. They are very strong and light.

SEND FOR PRICES.

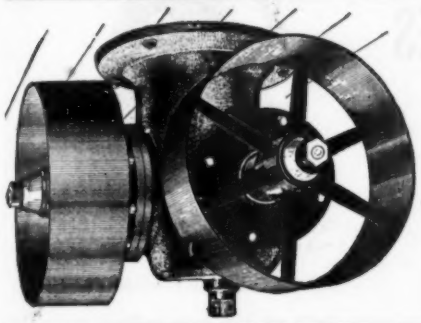
Oneida Steel Pulley Co.

Oneida, N. Y., U. S. A.

WHEN using the Chase wood rim Pulley, the bursting of rims cannot occur. The absence of accidents makes happy, confident workmen.

CHASE PULLEY CO.

PROVIDENCE, R. I.



A New Angle Power Transmitter.

No more mule pulleys or bevel gears necessary to connect shafts which are perpendicular or oblique to each other, or one above the other. The workman's machine can be put in the most convenient place.

Great advantages result. The contrivance is durable, inexpensive to maintain and unannoying.

A. STANDISH ESTATE, Columbus, O.

NATIONAL SURFACED TANNED

IS THE BEST HIGH-SPEED BELT ON EARTH.

WE MAKE Surface Tan Belts, Raw-Hide Belts, Raw-Hide Lace Leather, Raw-Hide Hydraulic Packing, Rope, Gear Wheels and Pinions.

Write for prices.

NATIONAL RAW-HIDE AND BELTING COMPANY,

Tannery, Factory and Office. NILES, MICH.

"OUR NAME AND BRAND A GUARANTEE OF QUALITY."

N. J. Car Spring and Rubber Co.

SOLE MANUFACTURERS OF THE CELEBRATED

"GLADIATOR" BRAND RUBBER BELTING.

Quilt and Straight Stitched.

High Grade Rubber Goods for Mechanical Purposes.

"Gibraltar" Brand Pneumatic Tool Hose.

Main Office and Works: JERSEY CITY, N. J.

New York, - - 10 Barclay St.
Cleveland, O., - 190 Seneca St.

Distributing Agents: W. D. ALLEN MFG. CO., Chicago, Ill.

AGENTS:—Lee Bros., Memphis, Tenn.; Nashville Machine Works, Nashville, Tenn.; Moore & Handley Hardware Co., Birmingham, Ala.; Southern Brass & Iron Co., Knoxville, Tenn.; Stratton & Bragg Co, Petersburg, Va; Southern Supply Co., Norfolk, Va.; N. S. Fulford Hardware Co., Washington, N. C.; Lombard Iron Works & Supply Co., Augusta, Ga.; John G. Christopher, Jacksonville, Fla; Peden Iron & Steel Co., Houston, Tex.; F. F. Collins Mfg. Co, San Antonio, Tex.; Young & Heintz, Dallas, Tex., Richard Mellett, Mobile, Ala.; C. A. Turner, Pittsburg, Pa.; Miller Supply Co., Huntington, W. Va.; Carolina Supply Co., Greenville, S. C; F. W. Axtell, Ft. Worth, Tex.; Little Rock Tent & Awning Co., Little Rock, Ark.; Hyman Supply Co., New Berne, N. C.

...KEASEY...

WOOD SPLIT PULLEYS

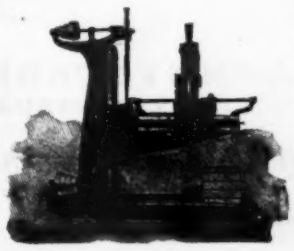
Have Malleable Iron Hubs, which are unaffected by atmospheric changes.

The Shaft Fastenings are so constructed as to prevent slipping.
The Spokes are made of oak or hickory, and are narrow, light and strong.
The Rims are air and kiln dried, laid up in segments and nailed and glued together, then compressed by hydraulic pressure.
Guaranteed to give absolute satisfaction. Write for catalogue and prices.

THE KEASEY PULLEY CO.

Manufacturers of Hangers, Pillow Blocks, Shafting, etc.

TOLEDO, OHIO, U. S. A.



RADIAL DRILLS, HORIZONTAL DRILLING BORING and MILLING MACHINES,

With every up-to-date feature embodied in their construction.

SEND FOR CATALOG M.

THE FOSDICK MACHINE TOOL CO.

CINCINNATI, OHIO.

PATENTED IN THE UNITED STATES AND FOREIGN COUNTRIES.

The American Pulley

is made of the finest WROUGHT STEEL.

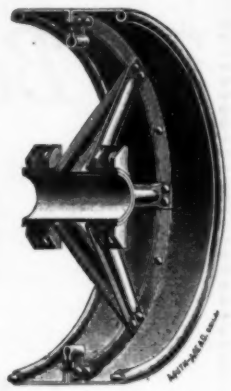
A Handsome Design.
Substantial Construction.
A Perfect PULLEY.

Saves Power.
Safe Under High Speeds.
Suits Everybody.

Sizes 6" to 42" Diameter—2" to 16" Face.

SOLD BY BEST SUPPY HOUSES.

Send for List and Particulars.



THE AMERICAN PULLEY COMPANY,

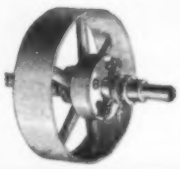
29th and Bristol Sts., PHILADELPHIA, PA.

Years have been spent in perfecting our Graphite and Bronze Bushings. They are now Practically Perfect.

The Graphite Lubricating Co.

Bound Brook, N. J.

Graphite and Bronze Collar or Washer.

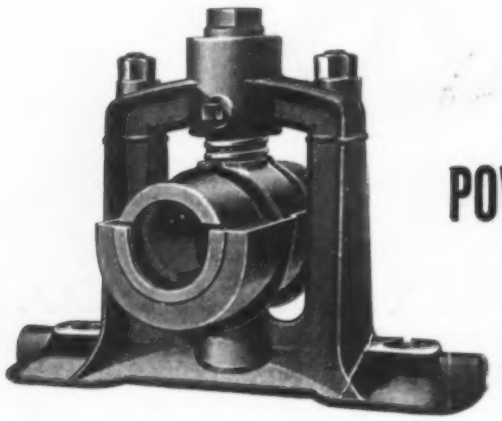


POWER TRANSMITTING MACHINERY.

Entire Contracts taken for the equipment of Mills and Factories with SHAFTING, HANGERS, PULLEYS, COUPLINGS, GEARING AND FRICTION CLUTCHES. Also the erection of same.

Poor design and Imperfect Construction in Transmission Machinery is a source of great loss in power and excessive operating cost. SEND FOR OUR CATALOGUE.

THE A. & F. BROWN CO., 25 Dey Street, NEW YORK. ENGINEERS, FOUNDERS and MACHINISTS.



T. B. WOOD'S SONS,

CHAMBERSBURG, PA.

Manufacturers of

POWER TRANSMISSION APPLIANCES

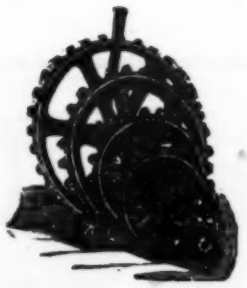
Including

Rope Transmission.

Special attention paid to complete equipments of machinery for the transmission of power. Rope Drives designed and furnished to transmit any amount of power.

Send for Catalogue and Mention this paper.

Sprocket Wheels



for detachable Link Belting either bore and set screwed or keyseated.

OUR DETACHABLE LINK BELTING

is made of the best refined malleable iron. All links drop hammered and accurately pitched to length and are tested to double the working strain.

Send for 100 page illustrated catalogue and discounts.

W. E. CALDWELL CO.

LOUISVILLE, KY.

OILLESS BEARINGS.

Metalined Loose Pulley Bushes require no oil or other lubricant, either at the start or occasionally afterwards. Will run perfectly dry for years.

North American Metaline Co. West Ave. Cor. W. 3rd St. Long Island City, N. Y.

Send for Loose Pulley Circular No. 5.

GOLDEN'S FOUNDRY & MACHINE CO.

COLUMBUS, GEORGIA.

Manufacturers of

Hangers, Shafting, Machine Moulded Pulleys.

Send for Price List and Discount Sheet.

Couplings, Pillow Blocks, Floor Stands, Collars, Etc.

THE PEERLESS

SPIRAL PISTON AND VALVE ROD

PACKING

Mount Carmel, Ill.
November 5, 1900.

PEERLESS RUBBER MFG. CO.
New York.

Gentlemen:—I am a Peerlees Packing Engineer. I have used it for years, and as high as three months on badly scored rods, 700 feet piston travel, running 15 hours per day, from full load to no load, and have not had any injury done to the engine or rod. It also consumes less power than other goods.

The numerous attempts to imitate your goods to my mind speak highly for their excellence. In no case, however, have they fooled us yet, as I always use the Peerless Piston and Valve Rod Packing, Eclipse Gaskets, Rainbow Packing and other goods of your manufacture.

Yours very truly,

C. B. RISLEY, Eng.,
Mount Carmel, Ill.

LOOK FOR THIS LABEL
On Every Box

Twelve to Eighteen Months in high Speed Engines Without Repacking.

CAUTION:—A Facsimile of this Label is glued around each and every coil of the genuine Peerless Piston and Valve Rod Packing.

Made in three different shapes: **STRAIGHT, SPIRAL and SQUARE SPIRAL.** **In sizes from ¼ in. to 2 in.**

A full and complete line of fine mechanical rubber goods, including Belting and Hose. WRITE FOR CATALOGUE.

Sole manufacturers of the celebrated
RAINBOW PACKING, also
ECLIPSE SECTIONAL RAINBOW GASKETS,
HONEST JOHN, HERCULES COMBINATION, ZERO,
SUCCESS, ARCTIC and GERMANE PACKINGS.

Manufactured, Patented and Copyrighted exclusively by

Peerless Rubber Manufacturing Company

16 WARREN STREET, NEW YORK.

16-24 Woodward Ave., Detroit, Mich.
219-214 N. Third St., St. Louis, Mo.
Cor. Common & Tschoupitoulas Sts., New Orleans, La.
38 S. Meridian St., Indianapolis, Ind.
220 S. Fifth St., Philadelphia, Pa.
17-23 Beale St. and 18-24 Main St., San Francisco, Cal.
1221-1223 Union Ave., Kansas City, Mo.
709-711 Austin Ave., Waco, Texas.
Cor. Ninth and Cary Sts., Richmond, Va.
20th St. and Railroad Ave., Birmingham, Ala.
1218 Farnam St., Omaha, Neb.
202-210 S. Water St., Chicago, Ill.
634 Smithfield St., Pittsburgh, Pa.
1601 to 1615 17th St., Denver, Col.

H. E. MAXFIELD & COMPANY,

136 Liberty Street, New York, U. S. A.

Manufacturers' Direct Sales Agents.

High Speed Vertical Engines.
Horizontal Engines.
Hoisting Engines and Derricks.
Horse and Hand Powers.
Gas and Gasoline Engines.

Contractors' Machinery.
Conveying and Elevating Machinery.
Mill Supplies.
Steam Users' Specialties.
Oil Filters.

Large Stock. Immediate Delivery.

Municipal Plant.

Water Supply Outfits

For Manufacturing Plants, Railroads, Small Villages and Private Residences.

Galvanized Steel "STAR" COLUMN TOWERS, Any Height.

Galvanized Steel, Pine or Cypress TANKS, Any Capacity.

Star Wind Mills,

Galvanized Steel or Wood, adapted for farm, residences, power or irrigating purposes.

"HOOSIER" and "FAST MAIL" IRON PUMPS.

Write for Catalogue.

DESIGNS and PRICES FURNISHED.

Ornamental Outfit

FLINT & WALLING MFG. CO., 516 Oak Street, KENDALVILLE, IND.

EASTERN OFFICE—96 Wall St., New York, N. Y.

OIL & WATER TANKS

OF ANY CAPACITY

BOILERS STACKS

PLATE & SHEET IRON WORK

THE PETROLEUM IRON WORKS CO.

MAIN OFFICE & WORKS WASHINGTON PA.

BRANCH OFFICES PITTSBURG, PA. BEAUMONT, TEXAS NEW ORLEANS, LA.

COOLING TOWERS.

Furnished With Fans or Chimneys.

(NATURAL DRAFT.)

George J. Stocker,

Patentee and Manufacturer,

2833 S. Kingshighway Boulevard,

ST. LOUIS, MO.

WRITE FOR CATALOGUE. (Illustrated.)

Southern Representatives:

LUDWIG & CO., Engineers,

513 EMPIRE BLDG., ATLANTA, GA.

"Absolutely safe and reliable. Ask your friends."

NO DANGER

of leaks or bursting if you have

A CALDWELL TANK

The Red Gulf Cypress used in its construction will not warp or twist under the greatest strain and its durability is astounding.

No Danger of collapse if you have

A CALDWELL STEEL TOWER

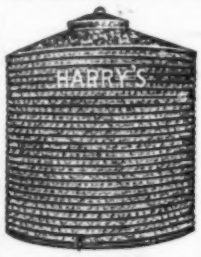
The best mild steel only is used and each tower will safely carry the weight of the tank.

The best work and the best materials make the best outfits, which is what you need in your business.

Have you seen our illustrated catalogue and price-list?

W. E. Caldwell Company, Louisville, Ky.

HARRY BROS. CO., { Manufacturers Corrugated Galvanized Steel Cisterns and Stock Tanks.



We manufacture Railroad Station Tanks, Tanks for Storage of Fuel Oil, Tanks for Cotton Oil Mills, Tanks for Factories, Mills, Gins, etc., and Large Tanks for every purpose.

Our Corrugated Galvanized Steel Tanks are known all over the southwest. Strong, durable, easily handled, equally good for use either underground or overground. They are the ideal Cistern and have no rival. **Our Patent Knock Down Galv. Steel Tank** is especially suited for shipment long distances, as shipping completely knocked down, it takes low freight rate. We can reach any part of the world with this Tank. Write us for prices or estimates.

HARRY BROS. CO. { DALLAS, TEXAS. BEAUMONT, TEXAS.

PURE SILICA SAND

For Water Filtration.

TRADE DIATOM MARK

We are the sole owners and miners of the celebrated DIATOM brand of white and absolutely pure Silica Sand and Gravel, the only known agent that will give clear, and at the same time pure, water.

No system of filtration is perfect without the use of our sands which are adapted to all methods of water purifying. Special attention to grading for municipal and factory work. Sand shipped to all parts of the world and in any quantity.

Send for samples and our Catalogue of Sand Filtration.

THE DIAMOND ROCK SAND CO.

1209 Real Estate Trust Building,

PHILADELPHIA.

Complete Power Plants, Steam-Electric, Installed.

Cranes, Electric-Hand,

FOR EVERY SERVICE.

McCLAVE, HAMILTON & CO.

85-89 Liberty Street,

NEW YORK, N. Y.

OUR TANKS ARE ALWAYS ON TOP

HONESTLY MADE

WRITE FOR PRICES

THE CYPRESS LUMBER CO.

APALACHICOLA, FLA.

Steel Storage TANKS.

HAMMOND IRON WORKS,

WARREN, PA.

Correspondence Solicited.

CYPRESS WATER TANKS.

Best in the world. Send for catalogue. Write for delivered prices.

H. F. LEWIS & CO., Ltd.

316 Baronne St. NEW ORLEANS, LA.

TUPELO WATER TANKS

Equal to cypress and 20% cheaper. For delivered prices write

Tupelo Tank Co., 27 Madison Street Mobile, Ala.

STEEL PLATE CONSTRUCTION.

The Girard Boiler & Mfg. Co. GIRARD, OHIO.

Blast Furnaces, Stacks, Tanks, Riveted Pipe, Stand Pipes, Galvanizing Kettles, Ladles, Girders, Structural Work, etc. *Write us.*

Signs of Good Sand Paper, THE BULL AND BEAR.

In Use More Than Twenty-Five Years.

Emery, Garnet and Flint Paper and Emery Cloth.

GLUE, CURLED HAIR AND HAIR FELTING.

BAEDER, ADAMSON & CO., 750 Market Street, Philadelphia. 67 Beekman Street, New York. 143 Milk Street, Boston. 182 Lake Street, Chicago.

Allis Roller Mill.

ALLIS-CHALMERS CO.

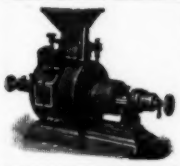
General Office CHICAGO, New York Life Bldg.

BUILDERS OF

Flour Mills, Corn and Cereal Mills.

Universal Bolters—Reliance Purifiers
Reliance Sifters—Allis Roller Mills

WRITE FOR DESCRIPTIVE CATALOGUE AND PRICES.



Our French Burr Mills

Are used by the leading mills because they are the Best. Investigation will convince you of their superiority. Catalog and Discounts on application.

SPROUT, WALDRON & CO., Box 38, Muncy, Pa.
FLOUR MILL BUILDERS AND CONTRACTORS.

Join the Army

of prosperous and happy flour millers who are making money with Wolf Machinery.

You can't find a better business. You can't find one that will yield a surer profit.

You can't find machinery that will make those sure profits come easier or faster than the Wolf System.

Estimates and any desired information gladly furnished.

The Wolf Company,
Mill and Elevator Builders,
Chambersburg, Pa.

This Space

will be occupied

by the

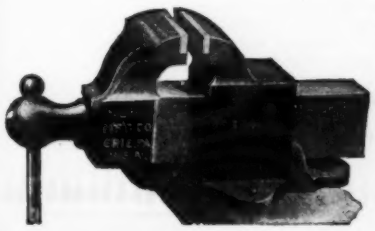
Georgia
Vitrified Brick & Clay Co.

Of Augusta, Ga.

Manufacturers of

High-Grade Sewer Pipe,
Shale Paving Brick, Fire
Proofing, and Fire Brick.

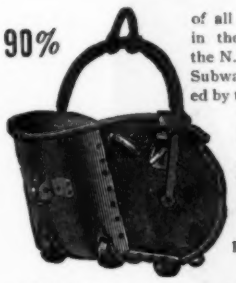
An Absolute Guarantee



against breakage. The very best quality of material and highest grade of work give our vises lasting features which permit our furnishing the above guarantee with each and every vise sold. We make all sizes with either stationary or swivel base. We also manufacture a full line of Plumbers' and Steamfitters' Tools.

Send for our new catalogue "R."

Reed Mfg. Co., Erie, Pa.



90% of all the Buckets used in the construction of the N. Y. Rapid Transit Subway are manufactured by the

G. L. Stuebner IRON WORKS,
167-177 E. 3d. St., Long Island City, N. Y.

Catalogue No. 444 gives full information of Buckets, Narrow Gauge Railways, Cars, etc., for every purpose.

Copper Works.

McMILLAN BROS.
Fayetteville, N. C.
Savannah, Ga.
Jacksonville, Fla.
McMILLAN BROS. COMPANY,
Mobile, Ala.
Mfgr's of

Turpentine Stills,
And General Metal Workers.

BURR STONES

For all purposes. Manufactured by us.

Also ROLLER MILLS, SMUT MACHINES and GENERAL MILL MACHINERY.

Established 1847. **B. F. STARR & CO., Baltimore, Md.**

CAREY'S MAGNESIA STEAM PIPE AND BOILER COVERINGS

Are the Most Efficient, Durable and Economical.

The Philip Carey Manufacturing Co., General Offices— LOCKLAND, OHIO.

FACTORIES—Lockland, O., Baldwinsville, Mass., Plymouth Mtg., Pa.

BRANCHES—New York, Philadelphia, Boston, Pittsburg, Cleveland, Cincinnati, Charlotte, Atlanta.

See our Roofing Advertisement on Page 57.

American Sheet Steel Company

Battery Park Building New York

Manufacturers of all varieties of

Iron and Steel Sheets

Black and Galvanized, Plain and Painted
Flat, Corrugated and "V" Crimped

Apollo Best Bloom Galvanized Sheets
Wellsville Polished Steel Sheets
W. Dewees Wood Company's Planished Iron
W. Dewees Wood Company's Refined Iron

GALENA-SIGNAL OIL CO.
FRANKLIN, PA.
Successors to Galena Oil Company and Signal Oil Company, sole manufacturers of the celebrated Galena Coach, Engine and Car Oils and Sibley's Perfection Valve and Signal Oils.
Charles Miller, President

Rubber Stamps, Seals, Stock Certificates and Bonds,
Manufactured by
NATIONAL SEAL WORKS
P. O. Box 60, RICHMOND, VA.

STOCK CERTIFICATES
FOR CORPORATIONS.
50 DESIGNS. REQUEST OUR SAMPLES.
MYERS' PRINTING HOUSE, NEW ORLEANS.

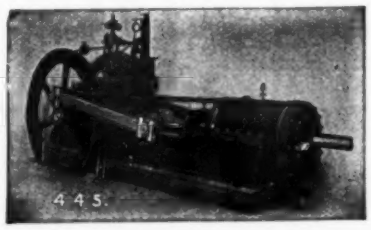
THE PITTSBURGH REDUCTION CO.
PITTSBURGH, PA.
ALUMINUM
Electric Conductors, Ingots, Bars, Plates, Castings, Tubes, Sheets, Etc.
Southern Office, Bond Bldg., WASHINGTON, D. C.

COLUMBIA SUPPLY CO.
COLUMBIA, S. C.
DEALERS IN—
Machinery Supplies.
Everything for Saw Mills.
Rubber, Leather and Gandy Belt.
Pipe, Valves and Fittings.
Estimates Given on Specifications.

PAGE 56
WILL INTEREST YOU.
BARRETT MFG. CO.
Philadelphia. St. Louis. New Orleans.

4500 AIR COMPRESSORS
VARIOUS STYLES AND SIZES.

NOW IN USE



37,500 ROCK DRILLS.

Mining Machinery.

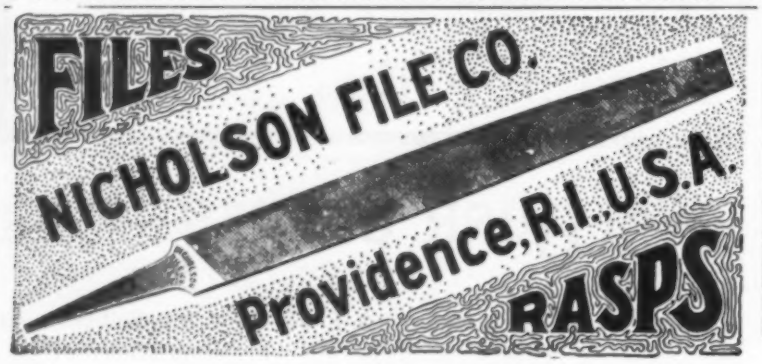
THE Ingersoll-Sergeant DRILL CO.
26 CORTLANDT ST., NEW YORK.

Pohle Air Lift Pumps.

SUPERIOR GRAPHITE PAINT

excels for bridges, structural steel, roofs (especially canvas roofs), tanks, boiler fronts, corrugated iron—in fact for all surfaces, wooden or metal, exposed to heat, water, weather, or destructive fumes.
This paint is durable because it's made of the best materials and with the greatest care. We shall be pleased to send you further information.

Detroit Graphite Mfg. Co.
New York. Chicago. Detroit, Mich. Cleveland. Buffalo.



MANUFACTURERS' RECORD.

A WEEKLY SOUTHERN INDUSTRIAL, RAILROAD AND FINANCIAL NEWSPAPER.

VOL. XLIV. No. 3. WEEKLY. | BALTIMORE, AUGUST 6, 1903. | $4.00 A YEAR. SINGLE COPIES, 10 CENTS.

Manufacturers' Record.

PUBLISHED EVERY THURSDAY BY THE

Manufacturers' Record Publishing Co.

RICHARD H. EDMONDS, President.
THOMAS P. GRASTY, Vice-President.
FRANK GOULD, Secretary-Treasurer.

OFFICE: MANUFACTURERS' RECORD BUILDING, BALTIMORE.

RICHARD H. EDMONDS,
Editor and General Manager.

THOMAS P. GRASTY,
General Staff Correspondent.

SUBSCRIPTION, - - - - $4.00 a Year.
TO FOREIGN COUNTRIES, - 26s. 6d. a Year.

BALTIMORE, AUGUST 6, 1903.

COPY FOR ADVERTISEMENTS.

Advertising copy (changes or new advertisements) should reach us Saturday Morning to insure insertion in the issue of the following week.

For the first issue in the month we should receive copy by Friday Morning of the week preceding.

THE DAILY BULLETIN of the Manufacturers' Record is published every business day in the year for the purpose of aiding manufacturers and business men generally who need to keep in daily touch with the new industrial, railroad and financial developments of the South and Southwest. Supplementing and in connection with the work of the Manufacturers' Record, it is an invaluable aid to all who are seeking business in the South and Southwest, the most wonderfully endowed section of America, where industrial, railroad and financial activity is creating an ever-widening market for machinery of all kinds, railroad equipment and building supplies and for financial operations, etc., and where the knowledge and skill of the engineer and expert will find their largest field of operation.

The Daily Bulletin is intended simply to cover every day the work of the "Construction Department" of the Manufacturers' Record in reporting every new mining, manufacturing, railroad and financial enterprise organized in the South and Southwest, and it is not intended to be a general daily newspaper. To all who want to be advised every day of every new enterprise organized in that section it is invaluable.

CAR FAMINE BEGINS.

There are many indications that we are to have another serious car famine this fall and winter. Commenting on this the New York Tribune says:

Railroads operating eastward from Chicago and St. Louis are finding further difficulty in supplying cars to shippers promptly. The scarcity has become so pronounced in the last week that the railroads are almost on the verge of a car famine. Unless there is a sudden change in the situation, traffic men now believe that they will have a worse time than they did last fall and winter, in spite of the large additions to motive power, equipment and yard facilities. The demand of shippers has become so great in the last two weeks that it takes nearly a week to fill orders for cars. There is every indication that the condition will last indefinitely. The rush is due, to a considerable extent, to a larger grain movement, which came at a time when there was a tremendous movement of other freight, which was delayed earlier in the season by the backwardness of the season, labor troubles and other adverse influences.

RISE OF THE MILLS.

Information carefully collected and published in the Southern Railway Textile Directory by Mr. M. V. Richards, land and industrial agent of the Southern Railway and Mobile & Ohio Railroad, in which is given a list of every cotton mill on the line of these roads, shows that on January 1 last there were on the lines of the Southern Railway in Alabama, Georgia, Indiana, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Virginia 458 cotton mills equipped for operation—an increase of forty-six during 1902. There were the same date in operation seventy-one knitting mills and fifty woolen mills, making, with thirteen mills on the Mobile & Ohio Railroad, a total of 592 textile plants with 5,749,132 spindles, 151,579 looms, 5424 knitting machines and other equipment. Since the beginning of the year nineteen cotton mills and eight knitting mills with 727,358 spindles and 20,134 looms have been completed, and there are under construction twenty-three other mills with 500,312 spindles and 14,025 looms, making the grand total in the territory tributary to the Southern Railway and allied lines 642 mills with 6,976,800 spindles and 185,738 looms—an increase since January 1, 1902, of eighty-six mills, 2,001,489 spindles and 55,693 looms. To this increase the Southern Railway, with its thoroughly-equipped and well-managed land and industrial department under the direction of Mr. Richards, has directly contributed. It is but a part of the great work of Southern development with which the Southern Railway is so closely identified.

SOUTHWESTERN IMMIGRATION WORKERS.

In severing his connection with the Southern Pacific system after nearly ten years' service Col. S. F. B. Morse has the satisfaction that comes to few men of knowing that the success of his work is fully appreciated by those among whom and for whom he has labored. The farewell banquet given him at Houston, Texas, was but one of the many expressions of the regard and esteem for him in the Southwest, where he has effectively accomplished a well-planned task and laid out the lines for even greater achievements. That these will be followed persistently is assured by the fact that Mr. Morse's successor, Mr. T. J. Anderson, who has been identified with the Southern Pacific for some years, has been his right-hand man in the immigration movement carried on so intelligently and comprehensively. Mr. Anderson is remembered in the East in his connection with the Seaboard Air Line in the days of Mr. E. St. John. In 1890 he became district passenger agent at Waco for the Southern Pacific, and within a year assistant general passenger agent, with headquarters at Houston. There his marked gifts as a passenger man were recognized by Colonel Morse, who placed him in immediate charge of the force of hustling and progressive land and immigration agents of the system. He is therefore thoroughly familiar with that work, and may be depended upon to carry it on with vigor to the upbuilding of Texas and Louisiana.

Advertisements of Southern localities offering special advantages for the location of manufacturing enterprises will be found on pages 68 and 69.

"BOOSTING" CORPORATIONS.

In a letter to the Manufacturers' Record Mr. Charles Hamilton of Waco, vice-pesident and general manager of the Texas Central Railroad Co., writes:

As long as the present attitude assumed by the Texas courts and juries exists against railroad companies this company will make no further extensions or investments in Texas except those that are absolutely necessary to maintain the property already in existence.

Mr. Hamilton refers especially to the prominence in the courts of what are known in Texas as "boosters" and elsewhere as "cow attorneys" and "ambulance chasers," who carry on their work in many communities where railroads are operated. The word "booster" came into circulation in a trial of a railroad damage case in Texas, when a self-confessed "booster," explaining that he worked on commission, said:

Whenever you hear of an accident you get on the spot as quick as you can and get the injured man to sign up a contract with your lawyer to defend him, and then you also work up evidence. Another thing is that whenever in conversation you hear any man express himself as friendly to corporations you take his name and report it to the lawyer you are working for, and the name will be scratched if it ever goes on a jury list.

This sickening confession tells of practices by no means confined to Texas or to trivial railroad damage suits. Nor are they confined to mere shysters, that is, to the creatures about the courts who are recognized as shysters. Men of standing at the bar and of decent reputation with the general public, even men of more or less eminence in public affairs, do not hesitate to resort to "boosting" the railroads or other corporations, and not a little of their activity in politics or in posing as representative citizens in their direct or indirect assaults upon corporations is designed to supplement the work of their "runners" or "touts," whose chief task is to solicit trade on the spot and to lay the foundation for increasing the disinclination of respectable men to serve as jurors. Could the details of this system be known, the secret of the means of livelihood of the superabundance of lawyers in the country would be disclosed. But "boosting" of corporations is not confined to the courts, with their parasites; it is found in legislative bodies among men who vary the monotony of making laws by fathering measures concocted for the sole purpose of blackmailing corporations somewhat upon the same principle as the blackmailing of employers by the walking delegates of employes. The only difference between the "boosting" lawyer and the blackmailing walking delegate is that the former, being a sworn officer of the courts, follows strictly legal lines. The ultimate consequence of the practices of both is shown in the letter from Mr. Hamilton.

NO HALT IN PROSPERITY.

Individuals who are inclined to take the recent declines in Wall street as a text from which to sermonize about what they imagine is a slackening of prosperity should look more generally and closely at business affairs before preaching. To be sure, the stomach of the business world has been subjected to some violent disturbances—if the name of that familiar organ may be used as a synonym for the New York stock market—but the heart of the great commercial and financial mechanism that controls the trade and traffic of the country is all right. It still beats strongly and steadily. Notwithstanding the drop in stocks and bonds from levels which acute observers admit were too high to be lasting, the actual work of the world is going on uninterruptedly. In support of this statement a few large and important facts must be noted.

First may be mentioned the recent announcement that the Pennsylvania Railroad Co. will make a $5,000,000 improvement at Altoona, Pa., erecting a great roundhouse, which, it is said, will be the largest in the world, besides a mammoth foundry plant and a large number of houses for the thousands of employes who will be given work in the new shops. Next is the awarding of the contract for building the eastern extension of the Wabash Railroad, the plans of the Gould system, like those of the Pennsylvania, proceeding without regard to the fluctuations of the financial barometer. Right in the same territory the Baltimore & Ohio is going ahead with its projects for improvement—a short line to be constructed here and double track to be put in there—so that the system will in the course of a few years be practically four-tracked for a large part of its length, especially in the crowded regions of the Pittsburg district and the coal territory of West Virginia and Maryland. In the South the Southern Railway is actively double-tracking its main line between Washington and Atlanta, the Seaboard Air Line is pushing on to Birmingham, the Louisville & Nashville is driving away at its extension to Knoxville, which is to make a direct route from Cincinnati to Atlanta; the Southern has just begun an extension through Rabun Gap for the purpose of making a low-grade coal road from the Tennessee mountains to tidewater, the Norfolk & Western and the Chesapeake & Ohio are going ahead vigorously with their extensive plans in West Virginia and Kentucky, respectively; the 'Frisco is actively at work upon its New Orleans terminal idea, the Missouri Pacific is busy build-

ing its line down the west bank of the Mississippi river to make a direct low-grade route between Memphis and the Crescent City, and the same company is furthermore building a big roundhouse and twelve shops at Kansas City. Contracts are being let for the union depot and approaches, which are to give Washington, at a cost of many millions, one of the greatest depots in the world. In addition to these numerous improvements, reports from many other States display the fact that railroad and other construction are wholly unaffected by the recent course of Wall street, and there does not now appear to be any reason for apprehension that they will be affected in the future. Indeed, some shrewd business men hold the view that this country, like England, has reached a position in which it may be said to be safe from great panics such as were known a quarter of a century ago and longer.

With these plain facts in full view the prophets of gloomy eyes have nothing of moment to support their prognostications of depression. On the contrary, the unsettled parts of the country are filling up at such a rate that the railroads are hard pushed to provide facilities for them, and the further rapid increase of our population indicates that its demands will not be fully met for a long time to come. Until they are satisfied the pace of business in all lines must of necessity continue unchecked.

EUROPE'S ALARM OVER THE COTTON SITUATION.

An interesting and inevitable feature of the recent cotton movement is the publication through government channels of documents having a decidedly bearish tone embodied in the reports sent by American consuls in France, England and Germany. The daily advance sheets of consular reports for August 1 are devoted almost entirely to such documents, including extracts from periodicals in Rouen, France; Coburg, Germany; London and Birmingham, England. Some of these documents give recognition to the economic causes of the plight in which European spinners find themselves, not the least of which is the steady increase of spindles in the United States, but others are but more or less loud echoes of the talk, heard at intervals during the past fifty years or more, of plans for independence of the American cotton crop. In France the view of the textile industry is almost as gloomy as that at Lancashire, which has led the Textile Mercury to suggest the possibility of legislation to defend the "raw material from the commercial highwaymen who now levy blackmail upon the actual consumers." Pierre Baudin, ex-minister of public works, is quoted by Consul Haynes at Rouen as follows:

> The market is dominated by one fact which directly menaces the consumers and manufacturers of the Old World. It is the development of American manufactured goods. Heretofore American cotton needed us as much as we needed it, but now American spindles are using what we need. If, after some years, looms are multiplied sufficiently there to absorb all the 12,000,000 or 15,000,000 bales harvested in the United States, Europe would for the most part be compelled to close her mills.

Dealing with more immediate conditions, the General Syndicate of the French Cotton Industry points out that the production of cotton has not kept pace with the consumption, and that the cause of insufficient supply, the cotton industry is anxiously asking how it can tide itself over until the next harvest. But something of a light upon this insufficient supply is perhaps given by Consul Haynes, who says:

> The principal cause of the present state of affairs is given as being due to a smaller crop than expected. Last year the mills, seeing a big crop ahead, held up to buy later. This was true not only of France, but also of Germany and England, and in general all of the European countries.

Isn't there unwittingly revealed here just a bit of bear movement on the part of the mills, or certainly a result of the mills becoming party to bear manipulators in the cotton market? In either event, isn't the plight of the mills a natural consequence of the wrong done by "the commercial highwaymen who levy blackmail" upon the actual growers of cotton? Isn't it a case of rectification, and ought it not to be a warning against giving heed to bear statements circulated either before the crop comes to market or after its facts are fully known?

SUICIDE.

Mr. George J. Bancroft of Denver, Col., is of the opinion that, on the whole, the organization of labor has not bettered the condition of laborers. In the Engineering and Mining Journal he writes:

> The best illustration of the fact that the labor unions have had very little to do with the betterment of laborers' conditions is afforded by the relative conditions on each side of the Sonora-Arizona line. Before the railroad was built in Guaymas, say, in 1875, the Mexican miners were paid about 25 cents per day. They now get from $1.50 to $2, or seven times as much, on the average, as they used to get. On the Arizona side of the line there has been no material change. The miners used to get $4 a day, and put in a good, fair shift of ten or eleven hours. Now the wages are from $3 to $3.50, but the working hours are shorter. It is true that the Mexicans are paid in silver and the Americans in gold, but inasmuch as all the necessaries of life to the Mexican are produced in Mexico, a silver dollar is just as valuable to him as a gold dollar is to the American living on this side of the line. Had the unions done as well, no better, for their union men as non-unionism has done for the Mexicans, the Arizona miners would be getting seven times $4, or $28, per day. Instead of helping our American workman, they have helped the Mexican, for the American capital that was ready and willing to develop American mines and employ American labor has been driven from the home field by the unions, and has been forced to shed its blessings on a foreign land.

Whether or not the contention of Mr. Bancroft may be borne out by the facts in the illustration given, it is indisputable that the shortsighted policy of masses of organized labor has been not the smallest influence in sending American capital to localities where there is no organized labor. This has been detrimental to labor not only in diminishing the amount of capital necessary for its welfare, but also in tending to obliterate the distinctions that actually exist among different kinds of organized labor. This has been hastened, too, by the fact that the organizations which have really benefited their membership by conservative and practical action refuse to separate themselves in sympathy from the support of leaders or other organizations whose program is radical and revolutionary and in opposition to sense. There is no doubt that capital is influenced materially in seeking investment by the guarantees that that investment will have the protection of law and of public sentiment. There is hardly a State in this country where there is not sufficient law for the protection of capital, but there are comparatively few States where the law is enforced as it should be. The supreme need of the country is the development of a public sentiment which will make it impossible for executive and prosecuting officers to be lax in the administration of the law. The South has a wonderful opportunity to attract capital and manufacturers if it would only convince business men that the lawless conditions and the dominating power of the walking delegate which are permitted elsewhere will be kept out of this section. If the country were convinced that such freedom from the power of union labor and the lawlessness that has followed it could be guaranteed by the South, the southward movement of factories and capital would be the greatest ever seen in the world.

THRESHING OLD EDUCATIONAL STRAW.

In the August issue of the World's Work, which is an educational number, the following editorial statement is made:

> An old plan to help solve the problem of Southern life, which was once discussed and discarded, was brought forward again by Mr. Charles A. Gardiner of the New York bar in a recent address before the Regents of the University of the State of New York. The plan is that the nation shall educate the illiterate. A bill known as the Blair bill to accomplish this was long debated in Congress, and finally narrowly defeated because it was described and by some regarded as a "bill to promote mendicancy." The argument of those who opposed it was that any community which could not or would not itself pay for the education of its children would lapse in resolution and in character if help were extended from without. This was the argument that caused the defeat of the bill, but there was an argument made also to show that it was unconstitutional.

The editorial alludes to Mr. Gardiner's argument as to the alleged constitutional right of the national government to educate illiterates as the only solution of the negro problem, and in conclusion says:

> The plan to seek national aid is likely again to come up for discussion.

The first sentence of the next editorial in the World's Work is as follows:

> A revival of discussion of national aid to education will be encouraged by the revelations that have been made of negro peonage in the South, in Alabama in particular.

This is interesting as an unwitting revelation of the dovetailing of divers partisan and "philanthropic" movements directed against the South in recent months. The point to be considered, however, at the moment is that whatever he may mean by the words "narrowly defeated," in referring to the Blair bill for the Promotion of Mendicancy, Dr. Walter H. Page, the editor of the World's Work, does not seem to have kept up with the obvious tendencies of the Southern Education Board and the General Education Board, of which he is a member, when he writes that the plan of national interference in the Southern common-school problem "was brought forward again" by Mr. Charles A. Gardiner.

As a matter of fact, the plan, carefully nursed for ten years by educationalists, remnants of the supporters of the abomination of the eighties, was again brought forward at the primary gathering of the body promotive of the latest Southern educational fad. Temporarily retired upon objection from the late William L. Wilson, who had both a mind and a memory, the Thing has nevertheless been sedulously cultivated through the circulation of what passes among untrained concocters and the unthinking readers for educational statistics. Mr. Charles A. Gardiner's speech was merely a rounding up of a five years' effort to educate public sentiment in the South to submit to the paralysis of outside aid for the common schools.

Common sense and self-respect defeated that proposition fifteen years ago after prolonged discussion and in the face of facts appealing to unthinking sympathy. Since then the weight of those facts, which could never justify the adoption of the scheme, has been greatly diminished. But the old school of educational mendicancy, with its visions of salaries for educational statesmen, has not changed its curriculum, and its younger pupils are repeating, in the belief that they have discovered great things, the arguments which were worn to a frazzle fifteen years ago.

Whatever may have been the intent of the thing, doubt as to its logical end should vanish with the reading of the following from the New York Evening Post, discussing the Alabama "peonage" cases:

> The sensitiveness of the South is the more remarkable when one considers the readiness of its leading educators and politicians to accept Northern aid for its schools. Southern governors and college presidents have welcomed the Southern Education Board in its annual conferences, and have approved its recognition of the national character of the South's educational problem. Northern aid is sought by many Southern schools and colleges, and no criticisms of their educational shortcomings are ever resented. It is only when the North speaks out in behalf of the negro that there is friction.

There is no evidence that the South as a whole has approved of the conduct of what the New York Evening Post calls its "leading educators and politicians." But this statement from probably the ablest defender of the Southern Education Scheme, intimating that willingness on the part of "leading educators and politicians" of the South to accept outside aid for its schools in objecting to a ratification of what the Evening Post seems to regard as a bargain, not necessarily put into words, reveals the contemptuous attitude of one class of supporters of the Scheme. Of course, the position of the New York Evening Post would be justified if the South was a mendicant. But the South is not a mendicant, and in assuming that it is the New York Evening Post is as ignorant about the great body of real educators as it is about the negro problem. But what must be the feelings of the men who, by their bearing, have, it is believed unwittingly, given the New York Evening Post the pretext for its insulting suggestion? They may seek to qualify in heroic strain till doomsday the imperfect statements upon which the campaign was based, but such efforts will be on a par with a man's turning a garden hose toward the moon in the effort to extinguish a disastrous conflagration for which he has supplied some of the fuel that might have been of use in its proper place.

THE SOUTH IN THE NEXT TEN YEARS.

James J. Hill is reported as extremely bullish on Northern Securities and as saying:

> If the Northwest will grow one-half as much in the next ten years as it has in the past ten years, I can pay off not only the cost of the Burlington road, but all the bonds of the Burlington road, and all the bonds of the Northern Pacific and the Great Northern roads, and increase the capital of the Northern Securities Co. from $400,000,000 to $1,000,000,000 and pay 6 per cent. thereon.

The Manufacturers' Record cannot speak for the Northwest, but it unhesitatingly predicts that in the next ten years the South will make more progress than in the last twenty. Every investor in Southern securities can safely base his calculations on an increase in wealth in manufacturing and in railroad traffic during the next ten years greater than the aggregate increase in

the last twenty. Twenty years ago the South mined 6,000,000 tons of coal; last year it mined 61,000,000 tons, a gain of 57,000,000 tons. Add this to last year's output and we will have 118,000,000 tons as the minimum production of the South ten years hence. The gain in iron was from 397,000 tons in 1880 to 3,100,000 tons last year, or over 2,700,000 tons increase, and on this basis 1903 will see the South making not less than 5,800,000 tons. Cotton spindles, which advanced from 600,000 in 1880 to 7,500,000 last year, will quite certainly go to 14,000,000 to 15,000,000 in ten years. And so down the whole long line of Southern activity. While here and there some one or two industries may not keep fully abreast, the general advancement of the South in the coming ten years will exceed that of the last twenty.

ON THE TRAIL OF THE HUMAN WOLF.

Objections have been made, of course, to the suggestion of the establishment of rural police for the prevention of crime and the suppression of vagrancy. The New York Tribune, strangely enough, raises the cry of centralization against the plan, argues that a centralized police would violate all the traditions of American democracy and would be a sign of republican decay, meaning that we were no longer completely fit for local self-government, and adds:

> No thought that the people—only in larger units—still enforced their own laws would reconcile our citizens to a police authority not immediately under the control of those with whom it came in contact. Moreover, with our spoils system and partisan habit, the creation of centralized machines of vast ramification is a serious danger. Yet that danger and this overriding of our dearest self-governing traditions we are inviting by our growing lack of self-restraint in almost every part of the country. If we do not want to see our old faculty for local self-government atrophy, and be compelled to accept what we should regard as a tyranny of centralization from the very necessity of preserving civilization and ordered society, then we must cultivate throughout our whole country a renewed reverence for law and a renewed determination to support our local authorities in enforcing it without fear or favor.

There is a vast difference between local self-government and government by mob or no government. There is also a vast difference between merely cherishing traditions of self-government and actual self-government. Careful study of history of the last thirty or forty years leads to a conviction that the ills mentioned by the Tribune have been accentuated, if, indeed, they have not been created, in the demoralization of a special class in this country who would feel most keenly the effects of a first-class rural police organized upon sane, practical lines. That can be done, and the way is marked out in the bill introduced some months ago by Mr. R. B. Blackburn in the Georgia legislature. The provisions of this bill may be imperfect, but wisdom might remedy all that, and certainly the measure looks to local authorities for the control of the State patrol. Such a system may never be absolutely perfected, but it may be administered in such a way as to obviate the pressing evils which the Philadelphia Press, reverting to the subject, thus describes:

> Lynching is not a first cause of lawlessness. Bad as it is, and calling for unsparing suppression, it is itself a secondary effect. It is itself caused by precedent lawlessness. It is a national evil. It is not local or sectional, except as certain conditions exist more frequently in Southern States. They are thinly settled. The "human wolf" is more numerous. The means for the preservation of order are rudimentary. Crimes of violence are more frequent. Many such are never heard of. But in time the cup fills, and suddenly the mob flames into vengeance, whose real cause is a culpable failure on the part of our State to give women in the countryside safety and protection by a rural patrol. * * * This loose rural insecurity must be removed, or mobs will continue and grow. Our American population, North and South, is law-abiding, but it needs better appliances for preserving order. The sheriff and constable are absurdly inadequate to keep the peace in a civilization of railroad, telegraph, telephone, trolleys and automobiles. New conditions call for new and improved organizations to keep the peace. Scientific surgery is needed to mark and render impossible a repetition of the awful crime which causes the worst vengeance of the mob.
>
> No deterrent will be so great as this penalty. No ex post facto suppression of mobs can be so effective as an efficient rural police and patrol. Such a force, supported by a State tax, networking our country highways and byways, rounding up tramp and vagrant, will prevent by prompt arrest for petty offences the graver crimes of violence and of lust which cause and create mobs, and which will continue as long as these crimes continue.

CONGRESS AND COTTON.

On general principles the interference of Congress in any kind of trading is to be deprecated, because it is so difficult to draw the line between what is legitimate and what is not. Some years ago there was a long contest in Washington over a bill absolutely prohibiting dealing in options and futures in natural products of the soil, and it was finally defeated; but it is hard to see how Congress can reach the power to get up corners without legislating against speculation, which, if effective at all, would do more harm than good. Yet something of the kind is likely to be attempted unless the exchanges so order their trading that corners cannot be made in cotton or grain. Something may be gained if public opinion can be so aroused and directed as to make such proceedings disreputable. Bucket shops, which injure only their foolish victims, are harmless in comparison with a gang of speculators who at a critical time seize control of the supply of a material upon which an important industry depends. The Brown-Hayne clique and any allies they may have here or elsewhere will be chiefly responsible if Congress is induced to intervene with some drastic measure to prevent their particular form of piratical dealing.—New York Journal of Commerce.

As Brown seems to be paying cash for his cotton, and taking all that comes, what has Congress got to do with the matter? Hasn't a man a right to buy one bale or a million bales, and if not, where will you draw the line? If Congress has a right to prevent men from buying cotton, ought it not logically to have the right at other times to force them to buy it? For some years the cotton bears and the mills have had their innings in the way of low prices. Suppose now that it should prove that Brown has started a movement which will result in the Southern planters having their innings in the way of good prices. Isn't turn about fair play? As bearing on this a dispatch from Lowell quotes Arthur T. Lyman, a leading New England mill-owner, as saying:

> The corner in cotton threatens extreme want to the mill operatives of New England, at least 250,000 of whom are already idle.
>
> The condition is serious, and cannot be helped. There is not enough cotton to keep the mills open. This month and next the new crop will be on the market, and its quality will determine whether the corporations can employ their full force or not. The new crop cannot be cornered.

If Mr. Lyman's first statement that "there is not enough cotton to keep the mills open" is correct, then the new crop must sell at high prices without regard to the bull speculative element now in control.

The sales in the Joplin (Mo.) district during the week ended August 1 were 9,133,500 pounds of zinc ore and 1,375,400 pounds of lead ore, valued in the aggregate at $199,370.

NEW ORLEANS VIEW OF COTTON PRICES.

[Special Correspondence Manufacturers' Record.]

New Orleans, La., July 30.

No facts concerning the South is regarded with greater interest today than the situation as to prices of raw cotton, and there is nothing affecting the South by which opinions are at wider variance. Some writers of cotton circulars and speculators who take counsel of their hopes profess to doubt the existence of a more than ordinarily severe famine in raw material, which has been announced and insisted upon by the leaders in the bull movement ever since the new crop came into sight last fall. There are, furthermore, not a few disinterested students of the situation who are fearful that the present high price of cotton may stimulate an overproduction of the staple in the South and elsewhere, with the result that a reaction and heavy decline would ensue, thus upsetting all business in the South and bringing widespread disaster.

Almost universally among the best informed dealers in cotton in New Orleans the opinion prevails that an overproduction of cotton, sufficient to produce a disastrously low price, is entirely out of the question. It is declared that labor conditions have so changed in the South that an enormous increase in the cotton output is impossible, it being held that during the past three years, and since cotton went to nine cents for the first time following the great depression, the South has been straining every effort to produce all the cotton it could. If within the limits of possibility, it is declared, the South would be making between 14,000,000 and 15,000,000 bales instead of the present production.

Foreign countries are doing their utmost to increase the supply of cotton they raise, but labor conditions confront the efforts there as in the South. With the tremendous stimulus to cotton production given by high prices and the blockade of the Civil War, India raised a great crop of cotton, which it has been found impossible to increase since. With the 300,000,000 population in that country, there is a constant struggle to raise the foodstuffs required to sustain the people, and any great increase in cotton-raising there is hardly to be expected. England is restive under the American monopoly of cotton-raising and is doing her utmost to stimulate the production in any of her colonies suited to cotton-raising. South Africa, in the Hinterland country, is theoretically, an ideal place for the production of cotton, but the future of cotton-raising there is an unsolved problem. Even in the gold mines of the Rand, where wages are high, the labor problem is one of constant difficulty and embarrassment.

Thus, taking a world survey of the situation, and these New Orleans men have demonstrated that their horizon is entirely as wide as that of any other man who deals in cotton, the declaration is freely made down here that it is impossible to again have an overproduction of cotton such as will menace prosperity.

Going further into the labor question in the South, it is pointed out that up to about ten years ago the only thing the negro could do was to work in the fields. Since then industries have sprung up all over the South; saw-mills have been established by the thousands everywhere; there is work for the negro on the levees and in the growing cities, and he has been to a large extent weaned away from the plantations.

The situation is, therefore, the result of a change in circumstances, and the adjustment to the requirements of even today will necessarily be a matter of slow progress.

There has been a tremendous increase in the demand for goods manufactured from cotton. This demand bids fair to continue to increase with the opening of the Orient to American-made goods.

These are the facts pointed out by New Orleans cotton men when they declare that overproduction and reaction to low prices is incompatible with present conditions and is not in sight for the near future.

As to the present effect of the bull movement on the welfare of the South, the prosperity it has brought is apparent on every hand. There must be something like $200,000,000 more money in the cotton crop for the South than would have been received at former prices per bale. This vast increase in wealth has made the greatest possible change in the sentiment of the people and in conditions here, and has given new life to the whole South. Many public improvements have been undertaken, new storehouses, office buildings, public buildings, schoolhouses, etc., have been erected and are under way; electric-light plants and water-works are being put in, street-railway systems established, and the values of bank stocks and other securities have greatly increased.

This prosperity is widespread and permeates every section of the South, being particularly noticeable in the bank clearings and commercial reports of New Orleans. The bull leaders have the great satisfaction of knowing that everybody has been benefited by the movement, whereas when the bears succeed there is a drying-up process that benefits a few to the injury of the community. There is an undercurrent of rejoicing here as one feature of the bull movement—that the autocracy of New York has been overthrown. It is declared by these critics that hereafter New York cannot make money on the wrong side of the market, as it has been able to do heretofore.

While the leaders in the bull movement are not indulging in any boasting, and have had nothing to say in disparagement of their New York antagonists, yet among the people generally there is very widespread satisfaction at the outcome of the bull movement. While the profits to the bull clique have not been counted up yet, and cannot be for some time, yet their victory cannot be taken away from them. They have demonstrated that they cannot be shaken out by panics or combinations against them, and they have won in the sense of taking the stuff contracted for. It was to the bears of Wall street a most amazing thing when Southern men went in and took 200,000 bales of cotton in one day and paid for it. Of course, the deal will not be closed until this cotton is sold, but the bull clique is disposing of it right along, and spinners who keep their mills going will apparently be forced to negotiate for the purchase of the entire stock.

Statistics are in abundance that the world's present supply of cotton cannot last many weeks, even with a material reduction in the operation of manufacturing plants. There is tardy and reluctant recognition of the fact that the famine in cotton exists, and it is becoming apparent that in order to prevent a famine in manufactured goods the mills will be forced to continue operations to an extent at least. In other words, that the requirements of the trade will not make it possible for them to sit down and wait for the new crop, which is certain to be late, to come in. A fact that may have some

consolation for complaining spinners is pointed out to this effect: that no such movement as the present is possible without an underlying cause. If cotton had gone along at about a price of eight cents a pound, the famine would have been reached abruptly. Spinners would have gone merrily on their way working up the crop until they woke up to the fact that supplies were exhausted, and when the shortage was perceived by themselves they would have bid prices up even higher than the present point, and the embarrassment to the trade would have been universal. The bull movement, however, put on the breaks and notified the world of conditions, restricted the consumption and prepared the spinners and the public for a knowledge of the famine that now exists.

This is the consensus of opinion I have heard expressed by authorities, writers and cotton dealers.

When the Manufacturers' Record some time ago published an interview I had with Mr. W. P. Brown, the leader of the bull clique, on the cotton situation, the article was most widely copied and commented on both in this country and abroad. As anything he may say on the cotton situation is therefore of very general interest, I give herewith some of the comments he recently made to me in the course of a conversation:

"It is well enough to remember," said Mr. Brown, "when we are discussing the present price of cotton, that there has been an increase in the price of all commodities. When cotton sold at five cents a pound, supplies and food could be bought for half what they cost today, and even when cotton was held at eight cents a pound, cotton-raising was a more attractive proposition than it is now.

"It should also be remembered that the basis of all values is the gold output. I predicted higher prices for cotton when the enormous output of gold began some years ago. The labor situation is also undoubtedly one of the reasons for the increase in the price of cotton. We will have to give more money for farm hands, and with a higher price for cotton there may be a stimulus to greater production.

"The South is the place the world must look to for cotton. Within fifty years America has advanced from the position of third country as a cotton producer until we now raise two-thirds of the world's crop. All the efforts that have been made and will be made cannot take away the supremacy of this country.

"There is no danger apparent of an overproduction. We are confronted by a famine in cotton and manufactured goods. We need 12,000,000 bales. As to the present conditions, it is all nonsense to say that the price of manufactured products will not be gauged by the price of raw material. Those matters will adjust themselves, and there will be a parity of prices. I have figures submitted to me by a spinner that demonstrate, moreover, that money can be made at the present price of raw material by making and selling yarns at their current prices.

"The time has come when outside influences cannot arbitrarily make prices on cotton below the actual value. The price should be fixed by the South, where the cotton is produced, and I predict the time is not far distant when the Southern States will spin up and manufacture one-half the cotton raised in America.

"One point that I have insisted on and desire to emphasize is that spinners would not be sending up their present cries of distress if they had confined themselves to legitimate operations. If they had gone into the market last fall, bought up the cotton they needed and made it into such goods as they were accustomed to turning out, they would now be in comfortable shape instead of having to sell some of their cotton, as some are doing, in order to settle up speculative deals. A spinner has no more right to speculate with the mill's money in cotton futures than a bank's officers would have to speculate with their depositor's money in futures in Wall street. I do not think you will find that many spinners have been hurt outside of those who have indulged in this kind of speculation."

ALBERT PHENIS.

TRADE PROSPECTS IN THE COTTON BELT.

Prosperity which has come to Southern farmers in large measure through the prices for cotton which have prevailed during the past two or three years is reflected in a number of letters to the Manufacturers' Record from dealers in hardware and machinery in the cotton belt. These letters are from representative men in the several States whose business is directly affected by the fluctuations in the fortunes of the farmers. With hardly an exception they are full of hopefulness for the fall trade, subject, of course, to the possibilities in the cotton crop. They are as follows:

Farmers Practically Out of Debt.

Buford Bros., iron and steel, Nashville, Tenn.: "We only handle machinery which pertains to the carriage and wagon-makers' trade, and cannot speak for the other lines. For the machinery we do handle the demand has been very good for a year past, and still continues. The demand for other goods in carriage and wagon-makers' supplies has never been as good. Our customers have not only bought more and better goods, but have paid for them more promptly, and in a business 35 per cent. larger than for a corresponding period last year we have not half as many slow accounts. Our traveling men, who cover portions of nine Southern States, report prospects very flattering and customers in a good humor and looking for a prosperous business this fall and winter. Crop prospects were never better, and farmers are practically out of debt, so 'the wave of prosperity' should continue for a year longer, at least. We never felt more sanguine, and shall sell all our old customers and make as many new ones as possible, with perfect confidence that we will be able to collect our money when it is due. The writer has returned from a short trip through Georgia, Alabama, Florida and Tennessee, and was very much gratified at the encouraging prospects for a fine cotton and corn crop. In this same section last year the drouth destroyed nearly every vestige of verdure, and want seemed to stare the people in the face."

Retail Merchants Never in Better Shape.

J. M. Gray, Jr., vice-president Gray & Dudley Hardware Co., Nashville, Tenn.: "In our opinion, the South has never been in such prosperous condition before as it is at present. The farmers have had abundant crops for several years, and have obtained good prices for them, and the prospects for the present year are very flattering. The condition of the cotton crop in the South now is splendid; it is growing rapidly, and promises to be one of the largest cotton crops ever known. Of course, everybody knows the high price cotton is quoted at now, and it seems to be the general opinion that while it may possibly decline a little before the crop is harvested, still it is going to bring a very high price to the farmers. The lumber interests of the Southern country are immense. There are thousands of acres of magnificent timber lands throughout the Southern States. The mining and mineral interests of the South are also very large and rapidly being developed and increased. A great many new coal lands have been opened during the past year. Old iron furnaces have been started, and new ones have been built and put in operation. Large quantities of rich phosphate have been discovered in several parts of the South during the last two or three years. There is more than a dozen phosphate companies now in operation near the town of Mt. Pleasant, Tenn., and all of them doing a most successful and profitable business. The retail merchants of the South were never in better shape. They are carrying well-assorted large stocks of goods. They are paying their bills promptly, many of them discounting, and they are buying liberally. The reports from the jobbers of this city and other Southern cities are very gratifying. They are all enjoying the largest business in their hostory, and are preparing for still better times during the fall and winter months."

All Industries Fully Occupied.

Towner & Co., Memphis, Tenn.: "In regard to sales in our line for this year, would say we are pleased to state that we have had a nice increase each month, with the exception of one month, since January 1. The outlook in our section is very bright indeed. It has improved considerably within the past three or four weeks. Our weather during that time has been excellent for cotton crops, and now we are expecting a far better crop than we did three weeks ago. During the spring months we had a great deal of rain, and the overflows prevented the various woodworking plants from getting timber, though conditions have changed recently, and all of the industries in this section are very busy and have a bright future before them. There is a big demand for all of the materials that are being manufactured in the Memphis territory, and, in our opinion, every concern will have a good year. Our business is largely with the manufacturers, and naturally when we are busy they are also, and vice versa. As stated above, we believe conditions here will be very good, as the corn crop is a large one, and we are expecting a large cotton crop. There is an immense demand for sites in this section for locating factories and other industries, and at the present time our city has a number of new plants going up, while there are others seeking a location here. We consider that our city has a very bright and promising future, and we hope these conditions may continue."

Looking for a Big Trade.

Moroney Hardware Co., Dallas, Texas: "Trade is quiet, and, in our judgment, will continue to be so until the first or middle of October. Crops have been short two years, and our farmers and country merchants are hard up. Crop prospects this year, however, have never been better at this time of the year, and we are looking for a big trade beginning with October."

Oklahoma's Cotton Yield.

Armstrong Hardware Co., Oklahoma City, O. T.: "Our section of the country is in very fair shape financially. Our farmers made a fair crop last year and were able to tide over the winter very nicely. They have just harvested the finest wheat crop in the history of Oklahoma. The oats have also turned out nicely, and the prospect for corn and cotton is very fine at the present writing. We are beginning to need rain, and unless we get it within the next week or ten days corn will suffer and the crop will be cut short to some extent. The acreage of cotton is not what it was last year, but we believe that with the higher prices prevailing the farmers will realize equally as much out of the yield for the year as they did in past years when prices were much lower. All of these conditions are more or less flattering and make business good. If we get a rain within the next week, we believe that we will have business in such quantities as to make us work early and late to take care of it."

For a Continuance of Good Business.

The Milner & Kettig Co., Birmingham, Ala.: "Indications are very favorable for a continuance of good business. Crop reports to which we have access indicate that while crops are backward, they will be above the average. If the price on cotton remains at present figures, we see no reason why the agricultural districts should not be in excellent shape next fall and winter."

Farmers in Better Condition Than for Years.

C. H. Ireland, treasurer and general manager Odell Hardware Co., Greensboro, N. C.: "It is a little hard to tell what the prospect will be for fall trade, as there are a great many items that enter into this matter, and it is difficult to predict accurately as to the outcome. Judging from present appearances, the trade condition will be dull until after cotton comes in. After that time it ought to be first-class. The tobacco crop will be quite short, the wheat and oat crop is very poor, the corn crop very backward, but all producing fairly good prices. Therefore it ought to make the late trade good, but it will necessarily affect the early fall trade, and we do not count upon very great activity for the early fall months. I find the country in a prosperous condition. People are in good heart, have faith in the future. There are fairly good stocks of goods being carried by the retailers, therefore the jobbing trade will be affected in a greater or less degree by that. The greatest trouble I see confronting us is the anxiety for next year. You know what a presidential year generally brings. The croaker will soon be abroad with his expectation that the world is coming to an end, and financial troubles held up before us as the inevitable. For that reason people are trying to get themselves in as good shape as possible to be ready for it when it comes. The short crop of cotton has affected the cotton mills to that degree that a good many of them are taking advantage of the high prices to shut down their mills for repairs, and will not be in a hurry to open up any sooner than necessary. That will make a little quietude in the sale of supplies and machinery for the mill-supply dealers. All in all, we believe that things are in good condition, and that the outlook is about an average, and if next year were not the presidential year I should say things are in good condition. You may be certain of one thing—the farmers of the South are in better condition than they have been for many years."

Disposed to Ultra-Conservatism.

W. E. Newill, vice-president King Hardware Co., Atlanta, Ga.: "While we cannot congratulate ourselves on an excess in volume of business for June and July, 1903, yet we believe the trade situation is in a very healthy condition indeed. Last year many of our friends overbought in the early summer, and were more or less inconvenienced thereby. This year the almost universal disposition is to be ultra-conservative and

buy in small quantities until the crop situation shall be more fully assured. Our crops are fully six weeks late, but we anticipate a very fine business indeed when the fall season fully opens.

Should Be Good Trade.

Weddington Hardware Co., Charlotte, N. C.: "Our business this year has been better than ever before, and we hope for a good business this fall, although the crop condition is very late, and in many sections of our immediate territory they are badly in need of rain. With an average crop and cotton to remain such as it is our trade should be in the very best condition financially."

Flattering Prospects of Business.

E. C. Atkins & Co., Incorporated, Sheffield Saw Works, Atlanta, Ga.: "The present prospects for a large business here this fall are very flattering, and should nothing intervene to damage the crops between now and harvest time, with the present price of cotton, there will be more money in this section of the country next fall than there has been in many years past."

Not as Bright as Usual.

Charlotte Hardware Co., Charlotte, N. C.: "Owing to the lateness of the crop and the extreme dry weather, business prospects do not look as bright with us as usual at this season of the year. If the farmers make an average crop and succeed in getting ten cents per pound for their cotton, the fall trade will be very large, but if the price of cotton should decline, the fall business will be very small. Farmers in our section have not recovered from the poor crops of last year and the year before. A good crop this season would go a long way towards setting them on their feet."

Indications of a Good Year's Trade.

John A. Hamilton, Jr., W. H. Gibbes & Co., machinery, Columbia, S. C.: "Our sales for the first six months of this year show an increase of about 50 per cent. over sales for the same period last year, and the indications are that trade will continue good throughout the year. The industrial development in this State has been very marked, numerous enterprises having been established, and others are being projected, with every assurance of success."

Merchants Easy and Ready to Buy.

Benjamin J. Schuster, hardware, Selma, Ala.: "I am glad to report that the feeling in the South is much better this season than it has been for several years past. The corn crop is an assured success, and while it is impossible to state the outcome of the cotton crop, the prospects are very promising, and with good seasons from now on will make a very good crop, but it will be from three to four weeks late. Am also glad to report that business in our line is very much better, and we find the merchants easy and ready to buy, as the feeling is very good."

Pointing to a Tremendous Crop Year.

Peter E. Blow, president Southern Brass & Iron Co., Knoxville, Tenn.: "The outlook for business in this territory is exceedingly bright—brighter than we have ever known it before. Everything points to a tremendous crop year. The demand for labor is greater than the supply, and at good prices. I believe the coming year will be the most prosperous in the history of this section of the country."

Not Troubled by Wild Speculation.

T. F. Wimberly, treasurer Wimberly & Thomas Hardware Co., Birmingham, Ala.: "The general conditions are far better than those of last year. The volume of sales is larger, and the general feeling of the consumer is better. In the agricultural section the small merchant is more hopeful on account of good crop conditions, with the prospect of better price for cotton. In some sections the grain crop was very good, and the general indications are for a good yield of corn. The cotton, however, is about twenty days late, but is clean and growing nicely. With suitable weather a fair crop will be produced. Suspension of work for thirty days has affected the mining trade, but previous to the strike the mining business was very fine. We understand that the demand for coal and iron, from orders already booked, will be good for the remainder of the year. The demand for building material is better than for any previous time. A number of large buildings in the city are being constructed, and the outside demand is unusually good. We think this a good indication of increased prosperity. Collections are good, with few requests for long datings. We are very glad to say that in the South, and particularly this section, we are not feeling the effects of wild speculations in the East."

Workmen and Material Scarce.

Knight & Wall Company, hardware, Tampa, Fla.: "Our section of the country is in better condition financially than ever before in its history. A great many improvements in the way of buildings are going on in our city; in fact, the demand for same has been so great that it has been difficult to obtain either workmen or material. Under such conditions our business is, of course, prosperous, and from all indications we have reason to hope for a continuance of same."

Steady Progress in Business.

Geo. V. Denny, vice-president and manager Georgia Supply Co., Savannah, Ga.: "We are not in the cotton-manufacturing section of the country exactly, but the lumber interests and the numerous pine-product plants being erected in this section of the South create considerable demand for supplies, and we think it will increase all the time. Our business is about two and a-half years old, and in that time we have had to double our warehouse capacity twice, and our sales this year will be three times what they were the first year we started in business. We are now preparing to move into a large new building arranged especially for our business, being five stories high and having railroad tracks at the back and fronting on the main wholesale street in the city."

Hoping for Higher Cotton Prices.

E. A. Peden, vice-president and manager Peden Iron & Steel Co., Houston, Texas: "The crop prospects are quite satisfactory through our section, and if no unforeseen accident occurs we hope to have good harvest this fall. We are pleased to state that our business thus far shows some increase over last year, hoping that higher prices for cotton will rule during the early fall."

Investments Giving Strong Impetus.

Webber-Ayers Hardware Co., Fort Smith, Ark.: "The prospects for fall business in our territory are promising; much more so than thirty days ago, when the cotton crop did not present a good appearance. Since that time the weather has been very favorable, and, barring any untoward circumstances, we will have a fair yield. The corn crop is good, and is now beyond the danger line. Judging from the steady and healthy increase in our own business, we feel safe in saying that trade conditions are good, and all are having their quota of increase. The industrial conditions here are probably better than might be supposed or than are usually found in agricultural districts. The development of our coal fields by Pennsylvania capitalists and the building of a system of coal roads to connect their numerous properties has given an impetus to developments here that we have not had heretofore. The Missouri Pacific Railroad is building a suburban belt line and terminals, which greatly augments the amount of money put in circulation in this vicinity. These two enterprises, with a new furniture factory and two wagon factories in course of construction, create an outlook very pleasing to contemplate."

Southern Farmers Good for What They Want.

Lee Richardson & Co., Vicksburg, Miss.: "Our experience is that hardware sales are equally as good as last year, with an encouraging outlook for the coming season. Cotton-crops prospects are much better than anticipated in the earlier part of the season, and with the prices expected we look for a satisfactory business this fall and winter. The farmers of the South all seem to be in good condition and good for what they want. The development of all industries throughout the South is extremely active and encouraging."

Soundest Basis of Material Prosperity.

Jas. H. Zelnicker, general manager Walter A. Zelnicker Supply Co., Mobile, Ala.: "Our business in this city is just one year old; therefore we have no comparisons to make with previous years, but we can say that when we started this business we estimated that we would make a certain amount of sales during the year, and the results have gone fully 25 per cent. beyond our estimate. Prospects for the ensuing year are in every way favorable. We find no decline in the number of projected new enterprises and improvements, and if anything, we believe that in the line of machinery the demand will be greater than in the past. A very pleasing feature of the situation is the industrial development in this section, for, after all, it is the distribution of money through the pay-roll of manufacturing concerns that is the soundest basis of general prosperity."

Too Busy to Explain Business.

E. C. Atkins & Co., Incorporated, Sheffield Saw Works, Memphis, Tenn.: "We are absolutely obliged to say that we are so very busy that it is impossible for us to write you a letter giving a full explanation of the business prospects as we think they exist in this section of the country. We simply want to say that we have had a first-class business since the first day of January—much better than we ever expected—and from all indications the prospects for the balance of this year are simply beyond anything that we have ever had. We sincerely hope that nothing will happen to injure the prospects and conditions that now exist in this section, and if they do not we will close the largest year's business in the history of this house."

Notes.

Conklin Tin Plate & Metal Co., Atlanta, Ga.: "Our business this season has been satisfactory and fully as good as it was last year, which was a good year."

Thos. W. Fritts, president Tom Fritts Hardware Co., Chattanooga, Tenn.: "The prospects for the coming fall are most flattering. Our farmers are in good condition, and prospects for the coming crop have not been as good for several years."

Rogers & Baldwin Hardware Co., Springfield, Mo.: "We are not wholly in the South, and have but little business in the cotton district. We consider the outlook for business promising, but the conditions would be better if the corn crop was assured."

J. H. Fall & Co., Incorporated, hardware, Nashville, Tenn.: "The outlook for business this fall is good, and we see no reason why the general business throughout our section of the country should not continue to be good for some time to come."

RAILROAD MOVEMENT AT NEW ORLEANS.

[Special Correspondence Manufacturers' Record.]

New Orleans, La., August 3.

Many details are not determined yet, but enough is known of the plans of railroads headed this way and to New Orleans, as well as of those already here, to demonstrate most conclusively that what is proposed by the railroads and what is to follow the completion of new jetties in the Southwest Pass will form a feature of New Orleans development of the very first magnitude.

There are many rumors in the air which may have foundation and may not, but it is an unquestionable fact that railroads of the Middle West, those controlling the trade of the Mississippi valley territory, are interested in New Orleans as they have never been before, and that a volume of business will be thrown in this direction by these roads which will be of the utmost importance in determining the status of this city as a port of exports and imports, ultimately to become the second, if not the first, of importance in this country.

The Illinois Central Railroad has already done great things for New Orleans, and it is evident that the plans and purposes of the 'Frisco-Rock Island system are of hardly less value to this city. There has never been a time that the Illinois Central Railroad failed to realize the present and prospective importance of New Orleans. The Stuyvesant docks, now the finest in the world, are being added to, and the investment of the Illinois Central Railroad in this city will foot up some $10,000,000 when improvements now under way and contemplated have been finished.

The importance of the 'Frisco's entry into New Orleans is indicated by the fact that this road proposes to make an expenditure of at least $15,000,000 on tracks and terminals here. In connection with the Southern Railroad, the 'Frisco system has bought the extensive Chalmette terminals, two miles below the city limits, and has also purchased two miles of river front between Chalmette and New Orleans, as well as the New Orleans & Western Railroad, which consists of fourteen miles of track running from Chalmette to the Illinois Central Railroad crossing near Avondale. The 'Frisco system, which is joint owner with the Southern Railroad in the Chalmette properties, proposes to establish elevators and wharves double the size of the Stuyvesant docks to begin with, and, having the benefit of the Illinois Central's experience, it will doubtless establish the finest terminals anywhere to be found. The 'Frisco also has secured a franchise for tracks along the river front from the upper city line to Henderson street, a distance of about seven miles. The city proposes to extend this line some two miles further to Clouet street, and it is proposed that any road will be permitted to use these tracks on a wheelage basis under certain specified provisions.

A provision of the 'Frisco's franchise is that the river tracks are to be turned

over to the city in 1907, the 'Frisco reserving the right to use them on a wheelage basis. These tracks will parallel the Illinois Central tracks along the entire river front.

It is the hope of the commercial interests of New Orleans that in the near future these river-front roads and the tracks on the New Orleans & Western Railroad will be connected, and that a complete belt road will be secured for the city, taking in the front and back of the town, and that the road will be operated on a wheelage basis, so that every railroad entering the city can deliver cars to any wharf or factory anywhere in New Orleans.

Another very important development in railroads touching New Orleans is furnished in the plans of the Gould systems. The Texas & Pacific Railroad has elevators and wharves at Westwego, on the western bank of the river, where its holdings cover a frontage of a mile; this in addition to the shops, yards and transfer station at Gouldsboro, from which place trains are ferried to the local depot in New Orleans. The Gould interests have always paid great attention to the development of the Southwest, Jay Gould having been one of the first railroad men of national importance who foresaw the future riches of this section. George J. Gould, the present head of the Gould systems, has not lost sight of the opportunities in the Southwest, even while he has been working on his grand transcontinental scheme of lines. He is much interested in the construction of the river line from St. Louis to New Orleans, which is being secured by the building of connections and new roads along the west bank of the Mississippi, and he is shortening up his lines to the West, building connections and arranging it so that there will be a water-grade line along the river and a short and direct route to Kansas City and the West by which it will be possible to bring Western grain and the packing-house products of Kansas City, Omaha, Wichita and elsewhere to the New Orleans terminals.

Branching out as the Gould roads do in the West and as the 'Frisco and Illinois Central do in the West and North, there is no telling what the present interest taken in New Orleans by these roads will do for the upbuilding of this port. Owing to the shorter interior haul, deliveries can be made in Europe from any point in the West on quicker time than through Atlantic ports, a fact that is full of significance in the future of New Orleans.

The International & Great Northern Railroad is to be extended from Houston to Beaumont, and it is stated that surveying parties are at work on a projected line from Beaumont to a connection with the Texas & Pacific Railroad at or about Deckerville, which would make the International & Great Northern another tributary to New Orleans.

Details of the plans of these roads have not been given out, and are doubtless not yet completed. There may be considerable guesswork in what has been printed and talked about as to what will be done, but it seems to be established beyond question that as fast as conditions will warrant all the plans spoken of will be worked out in some way to the great advantage of New Orleans.

For instance, nobody here knows what the Southern Railway intends to do. Its joint ownership with the 'Frisco in terminals is taken as an indication that it expects to run its own trains into New Orleans at some date. But the Southern Railway has very advantageous arrangements with the Louisville & Nashville and the Queen & Crescent railroads, and it is not considered probable that it will disturb these relations until it sees its way clear to come in on its own tracks on a more advantageous basis. There is a suggestion by some of those who indulge in efforts to figure out railroad problems that the 'Frisco system may build an independent line from New Orleans to Birmingham, and that the Southern Railroad would jointly use those tracks, or that the Southern itself might build a line from Birmingham to New Orleans. This, however, is all within the realm of pure speculation. Whether the Southern Railway has an independent line now or not at all, the interest it takes in New Orleans is conceded to be of distinct advantage to the place. In the same way, whether the 'Frisco system comes in over its own tracks or makes a trackage agreement with the Gould interests on the west bank of the Mississippi and the Yazoo & Mississippi Valley branch of the Illinois Central Railroad on the east side of the river from Baton Rouge down, the fact that the railroad will enter the city at all and that it will spend large sums of money in the development of terminals here is unquestionably of the first importance to the business interests of New Orleans.

It is conceded that if the 'Frisco does not construct a separate line of its own the chances are that it will make an arrangement by which it will double-track lines now entering New Orleans, and this will give facilities for transportation which will be of practically equal benefit to the city.

Another new road about which there is considerable speculation is the Louisiana Railway & Navigation Co. President Edenborn is a man of great wealth, and he announces that he means business. A demonstration to this effect is presented by his purchase of 2500 front feet on the river. He is at present negotiating for the joint use of the 'Frisco tracks along the river. He also announces that he proposes to construct a passenger station at Liberty and Cypress streets. The route of this road is between New Orleans and Shreveport, and a portion of the northern end of the line has been built. It has been printed in the newspapers that there is reason to believe a combination may be formed between this railway and the Missouri, Kansas & Texas Railroad, which now reaches Shreveport, and which is building a line into Kansas City, and the Chicago, Milwaukee & St. Paul Railroad. This is a very interesting proposition, but comes under the head of reports once characterized by Horace Greeley as "important, if true." So far plans have not been very freely announced, and for some time there will necessarily be a large degree of speculation concerning the purposes of this railroad.

The Southern Pacific Railroad always has been part and parcel of New Orleans. It has large terminals here and wharves and docks, as well as the immense machine shops of the company. The great traffic in rice, sugar, lumber and oil between New Orleans and Houston, to say nothing of the miscellaneous articles handled, has made it necessary for the Southern Pacific to avail itself of the shipping facilities at Galveston as well as those of New Orleans. It runs a fleet of steamers from both places, there being two to four sailings a week from New Orleans and Galveston to New York. Including the three boats in the Havana service, the Southern Pacific has eighteen steamships, fifteen being in the service between New Orleans and New York and Galveston and New York.

The Louisville & Nashville Railroad, one of the important trunk lines running into New Orleans, has not announced any new plans of development at this point, although the development of the territory through which it runs and the betterments in roadbed, bridges, sheds, etc., is helpful to this city and section. New Orleans people believe, however, that if this road had spent the money here that has been put into Pensacola that the Louisville & Nashville would be doing as big a business in New Orleans as the Illinois Central Railroad is doing today, and the Illinois Central handles here over 1,000,000 tons of freight a year.

The New Orleans & Northeastern Railroad, running between New Orleans and Meridian, Miss., with a branch from Meridian to Shreveport, is an important feeder for New Orleans, bringing as it does through cars over the Queen & Crescent, the Southern and the Mobile & Ohio railroads. Rumors of the sale of this road to the Southern have gained currency at times, but have lacked authenticity. The road runs through a section of the country susceptible to very great development, and the present management seems disposed to take advantage of the opportunities that exist. Several improvements in train service have been inaugurated by which North Texas passengers are given better connections and conveniences, and there are indications that the road will take increased interest in the development of the territory it covers.

There are some thirty lines of steamships engaged in the coastwise, West Indian, Mexican, South and Central American and transatlantic trades. The Harrison Line, with thirty boats, and the Leyland Line, with thirty-seven, operate between New Orleans and Liverpool; the Head Line, with fifteen boats, operates between New Orleans and Belfast and Dublin; the Cuban Line, with five boats, between New Orleans and London; the Scandinavia-American Line has twenty boats in the transatlantic service between New Orleans and other American ports; between Glasgow and New Orleans the Maclay-Prentice Line has forty boats; the Lamport & Holt Line has fifty boats in a service bringing coffee to New Orleans from Brazil and then loading at New Orleans for Antwerp; the Argo Line has ten boats in service between New Orleans and transatlantic ports; between New Orleans and Spain the Pinilos & Prats & Forch Line has fifteen boats; between New Orleans and the Mediterranean and Asiatic ports the Austro-American Line has eighteen boats, and between New Orleans and Mediterranean ports the Creole Line has fifteen boats. The extensive fleet of the Hamburg-American Line is called on for the use of such boats as are necessary for carrying cargoes between New Orleans and Hamburg. The French Line has thirty boats in the service, and this line also brings coffee from Brazil, and loads in New Orleans for Havre. Between New Orleans and Tampico and Vera Cruz there are three boats in the service of the Mexican Line, and fruit steamers owned by the United Fruit Co. covering various Central American and Mexican ports have average sailings from this port of about one steamer a day.

These, with the numerous river packet and barge lines, are the transportation facilities New Orleans now enjoys. When the improvements in the Southwest Pass are completed a minimum depth of thirty-five feet of water will be secured. This will enable any steamer afloat to enter the port of New Orleans with ease and load here to its fullest capacity.

With the railroad improvements now under way, with the development of all the contiguous country that is now going on, and in view of the fact that New Orleans is developing as it has never done before, it is not difficult to realize that the people of New Orleans have come to believe in their destiny. There never was such confidence on the part of all the people here in the future of this city, and it certainly does appear that influences powerful, even irresistible, are working toward the upbuilding here of one of the great seaports of the world.

ALBERT PHENIS.

Improvement in Iron Market.

[Special Dispatch to Manufacturers' Record.]
Cincinnati, Ohio, August 5.

The pig-iron market is more active than it has been since May. After a long period of listlessness there has been a decided renewal in inquiry and considerable buying, most of it for prompt shipment. It is evident that many consumers have allowed their stocks to run down to the danger point, and that they are now buying for hurry delivery. In the past few days there has also been a very decided interest shown in the market by many large consumers, who apparently are beginning to feel that the bottom is close at hand, and that it is time to carefully study the situation. There has been no accumulation of good foundry iron anywhere in the South or North. Some undesirable grades have been piled, but there is today, as there has been for the past year, a noticeable shortage of soft foundry metals. Many Southern furnaces are still behind on delivery of these grades. Southern Association furnaces are rigidly and religiously adhering to the basis of $13.50 for No. 2 foundry. The outsiders, however, are freely offering iron on the basis of $12 for No. 2, and they are obtaining the business that is now going.

MATTHEW ADDY & CO.

Danger of Car Shortage.

In their weekly report on the pig-iron market Matthew Addy & Co. say:

"In spite of the troubles of Wall street, there can be no question but that the general business of the country is good. Manufacturers are prosperous, prospects are excellent, and it would seem as if the outlook for the fall were promising. There is one thing very certain, and that is within two months it will be difficult to move pig-iron and coke promptly. The crops in the South and the West are going to demand for their movement all the freight cars available. In the past pig-iron and coke have always had to take second place, the crops being given first consideration. Without doubt this will happen again this year, and the consumer of pig-iron who provides himself with a stock of pig-iron before the crops begin to move will act wisely."

In the Birmingham District.

[Special Cor. Manufacturers' Record.]
Birmingham, Ala., August 3.

Judge Gray will arrive in time to preside over the arbitration board, which will convene next Monday to settle the differences between the United Mine Workers and the Alabama coal operators. The miners in most cases went back to work this morning, and by Tuesday it is thought the output will be well up to the normal, though some small mines are yet idle because of differences other than those to be arbitrated. The resumption of the miners has had a fine effect on business in every line, and has restored confidence all along the line. Merchants who have been holding off on orders have now sent instructions for early shipments, and the whole trade situation feels the return to settled conditions.

So far there have been few sales of iron other than in small lots. It remains a hand-to-mouth market, with the consumer looking only to his immediate needs.

There is still an impression that iron is going lower. The furnacemen say it is not, and the consumers say it must, so there it is; a case of take your choice. The facts are, though, that no iron to speak of is being sold except for immediate delivery. The bar-iron market is picking up, and the rolling mills will start up in a few days. The Gate City mills of the Republic Iron & Steel Co. will begin work in all departments but the plate mill Wednesday. The others will begin later.

The Dwight Cotton Mills at Alabama City, near Gadsden, are using coal mined near the mills and hauled to them in wagons. The mills are working steadily, running 50,000 spindles and 1800 looms. There is cotton enough on hand to keep the plant running for some time, probably until the new crop comes in. H. W. L.

ANOTHER SOUTHERN RESORT.

One of the Features of Gulfport's Development.

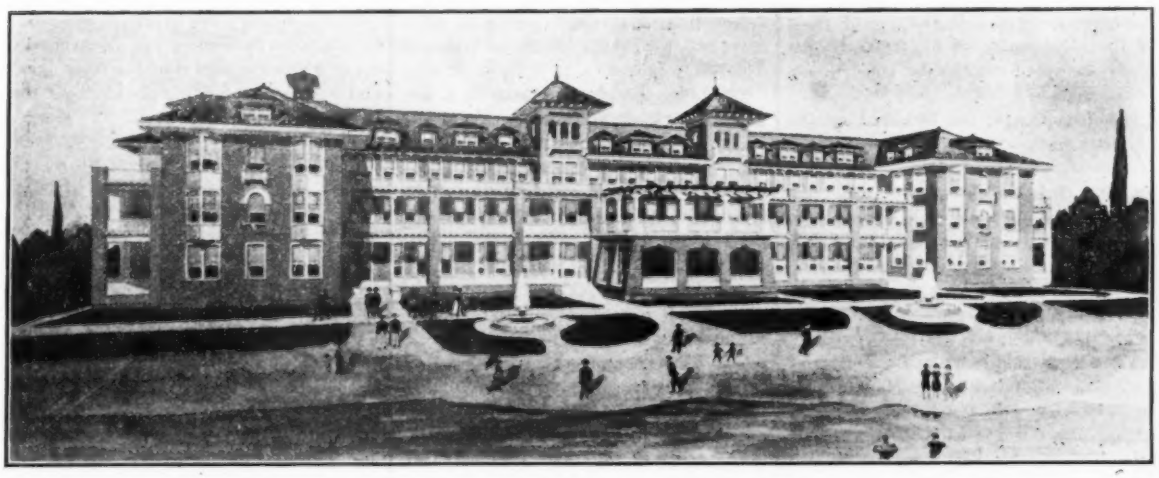
[Special Cor. Manufacturers' Record.]
Gulfport, Miss., August 1.

With a literal blaze of glory the Great Southern Hotel was formally opened to the public last week. There were fireworks on the beach, there was music and dancing on the broad verandas or "galleries," and there were hundreds of guests from all along the Gulf coast between New Orleans and Mobile. Thus most auspiciously begins the career of a hotel which is assuredly destined to inaugurate a new era in the tourist business of this section second only in importance to the achievements of Manager A. R. Blakely with the New St. Charles at New Orleans. There are many charming resorts along the Gulf coast, and they have for years been visited by Southerners in summer and Northerners in winter. But until the construction of the Great Southern there has been scant provision of hotel comforts. As at this hotel the conveniences and even luxuries of living are equal to those of any resort hotel anywhere in the country, it is certain that not only will Northern people be attracted to this place in the winter months, just as they have been in increasing numbers to New Orleans, but in addition other Gulf cities will be stimulated to provide more adequate and desirable hotel facilities, with the result of increased tourist business, greater familiarity with Southern conditions and opportunities, and a general advancement of all the interests of this region.

The Great Southern Hotel is one of the enterprises of Capt. J. T. Jones, the Buffalo millionaire, who practically owns the Gulf & Ship Island Railroad, and who is spending something like $3,000,000 to make Gulfport a city. As in everything else he does, the hotel has been built right. One of the leading architects of the South, Mr. Thomas Sully of New Orleans, was the architect and superintended the construction, as he also did of the railroad office building, the power plant, the bank building and other Jones improvements here. The hotel is of frame, but the timbers and flooring are of the most substantial material—the floors, for instance, being of three-inch timber—and there are metal laths and every other device for reducing the danger of conflagration to the minimum. There are broad verandas, wide halls, canopied galleries and loggias galore, and the broad side of the building faces the Gulf, from which delightful breezes blow. There are about 250 rooms in the house, ninety of which have bath, and they are so arrangeed that a suite of as many as thirty-five rooms may be obtained, and there are several of ten and twelve rooms. There is elevator service, electric lights, house telephone system, and the perfectly clear hot and cold water in every room is from an artesian well 900 feet deep. There is comfort and elegance in every feature of the hotel construction and furnishing, and it is easy to foresee that the fame of the place must spread throughout the land.

Mr. Cyrus H. Clarke, a Northern hotel man of wide acquaintance and long experience, who was for several years in charge of the Mexican Gulf Hotel at Pass Christian, is manager of the Great Southern, and he has introduced some novelties to Southern hotel management. The house, in the first place, is run entirely on the European plan. Another thing, there is white help only employed in the house. These features are entirely familiar and agreeable to the Northern tourist, and though the exclusively European plan is something of a novelty in the South, the fact that the New St. Charles is going to abolish its American plan feature this fall indicates that the European plan is growing down here, as well as elsewhere in the country. The card rates here are what might be termed popular, being about the same as prevail in the better class restaurants throughout the country. Judging from the first day's experience, when, if anything, allowances are due for the friction in starting up new machinery, the cuissine of the Great Southern will be found entirely satisfactory to those accustomed to excellent dining. The room rates are from $1 per day up.

Although the house is in completed form, there are various accessories which will not be finished for some months yet. Around the hotel there will be a park, with fountains, fish ponds, flowers and palms, and this park will be extended to the railroad station to be built, something like a thousand feet away. An electric railroad will be built from the depot to a pavilion at the end of the pier, more than a mile away. There will be a sort of clubhouse in the pavilion, with music at times during the day and evening. The bathing is not first-class in the immediate waters of the Gulf, but a boat is being fitted up as a transport, and it will be towed out to Cat Island twice each day for the accommodation of such guests as desire to avail themselves of the fine surf bathing there to be enjoyed. There is to be a swimming pool at the hotel. Then there will be a tennis court, a bowling alley, a golf course and an extension of the shell beach drive, by which it will be possible to go up and down the coast for twenty-five miles or more in either direction. A large dancing pavilion is to be built, and it will be fitted with a stage, so the room may be used for amateur or other theatricals. A 6000-acre game preserve has been laid out half an hour's drive from the hotel in the Mississippi piney woods, and is now being stocked with quail, turkey and deer, and also guineas, which latter are reputed to be most excellent shooting, reverting to primitive wildness even in the second generation from domestication. This game preserve will be available to the guests of the hotel, and will have a clubhouse on it, which will have sleeping accommodations as well as other conveniences. Thus, while Gulfport is at present scarcely a name to conjure with when it comes to making an appeal to those on pleasure bent, it is easily to be seen that the program outlined will make of it one of the most attractive places to be found in the South, being, as it is, but two hours from New Orleans and convenient to the North. L. & N. trains afford all comforts to its passengers, and arrangements have just been made by which a through sleeper will be run from Memphis to Gulfport via the Illinois Central to Jackson, Miss., and the Gulf & Ship Island road from there in. In the winter it is expected that through sleepers may be secured from Chicago, St. Louis and Cincinnati to Gulfport.



GREAT SOUTHERN HOTEL AT GULFPORT.

While the Great Southern Hotel is but an accessory in the large plan of development Captain Jones has in hand here, it is yet a most important part of the undertaking in the public estimate and interest. When one is completely cared for he is in better humor, too, to listen to the tales of how Gulfport is going ahead by leaps and bounds; of the new courthouse, the blocks of new business buildings, the $250,000 cottonseed-oil mill, all under way, and the great increase in trade which this new deep-water port is enjoying, and one is then quite disposed to indorse the confident predictions so generally heard of great things ahead for this city and all this section.

ALBERT PHENIS.

FOREIGN TRADE.

This department is designed to set forth opportunities for the extension of the trade abroad of American manufacturers, and to record facts about the rapidly-developing commerce of the South.

IRRIGATION IN BRAZIL.

An Undertaking Contemplated for Ceara.

Peixoto & Franklin of Ceara, Brazil, write to the Manufacturers' Record that they are constantly in receipt of inquiries about American manufactured goods, especially cutlery and iron products in general, glass and woven goods of every class. They add:

"We take this opportunity of expressing our appreciation of the article on 'Elements of Prosperity,' discussed by Mr. R. H. Edmonds in your journal, in its relation to business enterprises in America. We regret that our own country is not in a position to formulate any statistics on the subject, but we might show that the government and the people both feel the necessity of working in harmony for the industrial development of their country, and something has already been done in that direction.

"We realize that the people at large, not receiving in the schools a regular course of instruction, would not be able of themselves to attempt the advancement of any enterprise, and, by their own economic force and assiduous labor, stimulate their descendants to continue in the undertaking.

"In general, the want or lack of the necessary knowledge, in spite of thorough interest in a project, leads in the end to abandonment of the enterprise and loss of the invested capital. Our State is periodically wasted by droughts, which devastate the fields and ruin the plantations, and they would stay ruined if the people did not get to work willingly and energetically to do everything possible to save a part of the capital invested in the cultivation of the land.

"The government is now finally resolved to order the construction of a great reservoir for the purpose of irrigation, and as this is a work of very great importace, we shall give you a few particulars concerning it, so that you may be able to appreciate it, leaving out, of course, the labor of irrigating, which is, of course, the most important.

"The dimensions of the reservoir are: Area of hydrographic basin, 21,000,000 square meters; area of the reservoir, 21,-800,000 square meters; maximum depth, 16 meters; mean depth, 6.3 meters; circumference, 91,000 meters; capacity, 137,500,000 cubic meters; two drainage canals and four dams, in length 1338 meters. The effective volume of water for irrigation is calculated at 125,694,200 cubic meters, and will irrigate a superficies of 2572 hectares for five months for three consecutive years.

"From the above points you can see that this is indeed the most important undertaking in South America. As, however, this work alone is not extensive enough, the government is now treating for improvements, so as to insure a sufficiency of water in every zone of the State. The sinking of artesian wells, being less costly than works such as the above, and in the belief that such sources of supply will give the same results here as in other places, we have resolved to make a contract with suitable parties for that purpose, provided conditions and cost can be satisfactorily and conveniently agreed upon.

"The firm or corporation which desires to arrange with us for opening artesian

wells will kindly give information on the following points:

"The price per foot or meter, because the value of the well will be in relation to depth.

"As our land consists in part of sand, clay and rocks, boring of rocks should be taken into account.

"The machinery should be constructed so as to reach a depth of 5000 feet (pes) or more.

"We shall be happy to correspond with contractors who desire further information before making proposals."

Trade With Roumania.

In a letter to the Manufacturers' Record A. Feldman of 9 Decebal street, Bucharest, Roumania, writes:

"It is difficult to put in motion business between America and this country except in the case of a few kinds of farm implements which have met ruling conditions of purchase—payments in instalments within two or three years. There is a market here, though, for manufacturers' supplies, woolen and cotton goods of all kinds, hardware and upper leathers, such as splits, calfskins, chevreaux, maroquins, sheepskins, kid, and varnishes. The terms of purchase for cotton and woolen goods are payment at six months by acceptance of bill of exchange upon receipt of goods, and for hardware and leathers payment at four to six months after receipt of goods."

Trade With Havana.

F. A. Lay of Havana, Cuba, writes to the Manufacturers' Record desiring to get into communication with American manufacturers of cotton fabrics, commercial fertilizer, products of cottonseed, agricultural implements, turpentine and rosin, grease and soap stock, and general hardware, lumber and boxes and crates. He writes that business with the United States has been conducted by making direct shipments to the importers, who pay for the goods upon arrival at Havana with sight drafts on New York.

Gustavus Pulis, No. 167 Valleta street, Malta, in a letter to the Manufacturers' Record desires information about prices in sterling c. i. f. Malta of American cottonseed oil, meal and cake, and sawed pine, cypress and maple.

Franklin & Herrera of Buenos Aires write to the Manufacturers' Record that they desire to act as selling agents on commission for American manufacturers, and that they believe they can command an ample field for American products.

Agustin Salvans, Madrid, Spain, writes to the Manufacturers' Record that he would like to have the exclusive agency in Spain and Portugal for some of the best makes of American pianos and other musical instruments and musical publications.

M. J. Drouth of Odessa, Russia, writes that pure, white and firm American tallow from neat cattle or sheep only, quoted c. i. f. Odessa, would find a good market. There is also a market at Odessa for hides weighing not less than sixty-seven or sixty-eight pounds, agricultural machinery and implements and chemicals for industrial application.

During the past fiscal year the gross earnings of the Nashville, Chattanooga & St. Louis Railway were $9,606,370.11, a gain over the preceding year of $1,613,-839.21; the operating expenses were $6,995,603.65, an increase of $1,373,-459.37; the net earnings were $2,610,-766.46, an increase of $240,349.84; the operating expenses during the past year include $1,127,068.07 for additions to property.

RAILROADS.

[A complete record of all new railroad building in the South will be found in the Construction Department.]

TO THE ATLANTIC SEABOARD.

A Rumor Revolving About the Control of the Tennessee Central.

Discussing a report that the Illinois Central Railroad is about to accomplish a desire for a direct route over its own rails to the Atlantic seaboard, the Louisville Courier-Journal says:

"A deal is almost closed whereby the Tennessee Central will soon pass into its control, and that closed, the Illinois Central will build a line from Eldorado to Marion, Ky., thus establishing direct lines from Chicago and St. Louis to Nashville and paving the way for a transcontinental trunk line before the expiration of a year's time.

"Within the past week it has been stated with assurance that the Illinois Central has secured control of the Tennessee Central, although the officials of both roads refuse to confirm the report. The Tennessee Central also has plans on foot which can be best brought to a successful termination as an independent line, among which are the expansion of its terminal concessions in the city of Nashville, as contemplated in a bill which was introduced at the last meeting of Nashville's city council, and the collection of the subscription of $1,000,000 which Nashville voted toward the construction of the road.

"Confirmation of the Illinois Central's ambition in that direction is found in the statement that the company has decided to build from its terminus at Eldorado, Ind., to a connection with the Chicago line at Marion, Ky. That link, in connection with the Western division of the Tennessee Central, would give as direct a line between St. Louis and Nashville as it is possible to secure.

"The Western division of the Tennessee Central, with terminus at Hopkinsville, in connection with the Illinois Central's Chicago line, would make a direct route from Chicago to Nashville. Operating over its own lines from Chicago and from St. Louis to Nashville, the Illinois Central would be able to build up a grain and cattle trade which would be a valuable revenue-producer should the plans extend no further. The fact that the entire Tennessee Central is believed to be in the power of the Illinois Central, however, leads to the belief that the grain and cattle trade with Nashville is but the beginning of the proposed acquisitions of the road toward the seacoast.

"The Eastern division of the Tennessee Central is in operation to Emory Gap, and will soon be extended over its own rails to Harriman. Another short link would place the road in Knoxville, and from that point of vantage the matter of reaching the seacoast would be greatly simplified. Traffic arrangements with existing roads would enable the Illinois Central, as the possessor of the Tennessee Central, to successfully cope with competition for Atlantic-seacoast export trade, and the purchase of existing lines and the construction of the necessary connections to the seaboard would be the natural growth of time.

"The advantages which are to be derived by the road, should the plans believed to be now under consideration for immediate execution be carried out, are many. The new outlet would in no way interfere with the business of the road which moves by the way of New Orleans, and, on the other hand, would place the Illinois Central in a position to secure the business which it sees go over other roads each year for shipping at the Atlantic ports. While New Orleans is considered an excellent port for the export of grain, it is less desirable than an Atlantic port for a large proportion of the shipments moving from the Middle and Western States to transatlantic consignees. The rail route is more rapid by way of the Atlantic ports, and the water route, also, is more direct and less tedious.

"The situation is one which railroad men and shippers are watching with great interest, and will be likely to develop a material factor in the commerce of the nation."

TO ATTRACT IMMIGRANTS.

Well-Devised System of the Southern Pacific.

Col. T. J. Anderson, general passenger agent of the Southern Pacific, Atlantic system, makes the important announcement that plans of his road have practically been completed whereby the agents of the Southern Pacific Railroad will issue exchange orders on European, African, Asiatic and other steamship agents all over the globe. This arrangement is calculated to aid to a great degree the immigration movement from foreign ports to the rice and tobacco lands of Texas and Louisiana. The plan will enable foreigners who have come to this country and saved money to send through the Southern Pacific agents tickets and money to friends and relatives to other countries to enable them to come to America.

"This proposition has just been put under way," said Mr. Anderson, "and we are preparing to send our steamship traveling agent, Major Gabe Filloul, over a wide territory armed with rates and information concerning this project, for the purpose of thoroughly organizing and instructing our agents relative to the new plan. The system will enable settlers in Texas and Louisiana to send through tickets and money to friends at their former homes in perfect safety. For instance, a native of South Africa living, say, at Crowley, La., desiring to bring over a relative from Cape Town, may go to the agent there and give him $114.30; the agent thereupon will deliver to him an exchange order on the steamship agent at Cape Town; he, in turn, upon presentation of this order, will issue passage to the beneficiary, which will land him in Crowley, La. These exchange orders can be made out from points in Russia, Roumania, Germany, Austria, Prussia, France, England, Ireland, Spain, Portugal, Italy, China, Japan, India, the Philippines, direct to points along the Southern Pacific, and in this way we expect to induce a still greater tide of the highest class of immigration to the United States through the port of New Orleans. The great advantage of this system is obvious."

Mr. M. B. Trezevant, chief of the literary bureau of the Southern Pacific at Houston and Major Filloul are now busily engaged in compiling folders, pamphlets, circulars, etc., giving complete information of the wonderful agricultural possibilities of Louisiana and Texas; this, together with the new steamship folder, will be sent all over the world. The plan is recognized as being one of the most pretentious immigration propositions the South has ever known, because the exchange ticket system is to be used as the lever through which the attention of thrifty farmers in all parts of the world will be riveted on Louisiana and Texas.

Many Railroad Contracts.

Illustrative of the activity in railroad construction in the South is the estimate at Knoxville that Mr. W. J. Oliver, a railroad contractor of that city, is doing a business representing an expenditure of half a million dollars a month and employing between 15,000 and 20,000 men. His contracts are in different parts of the South. He is finishing the rebuilding of tracks and the establishment of new grades in North Carolina for the Southern Railway, and is concerned, too, with the double-tracking of that road in Virginia, which is progressing as rapidly as possible. He is also completing the enlargement and arching of a tunnel of the Cincinnati Southern Railway at Harriman; he has the contract for building railroad yards at Birmingham, and as W. J. Oliver & Co. are pushing the work on the Tennessee Central from Nashville to Hopkinsville, and expect to have trains running to Hopkinsville by November 1.

Proposed Texas Line.

In a letter to the Manufacturers' Record M. J. Healy of Canadian, I. T., vice-president and general superintendent of the McKenney, Decatur & Western Railway, writes: "A company of us will organize to build a railway from McKenney, Texas, to Decatur and Bridgeport, Texas. It is our aim also to build from McKenney east as far as Mansfield, La., so as to tap the lumber belt of that State and to give us a direct connection with the Gulf by way of the Kansas City Southern Railway and as far west as Roswell, N. M. The work of construction between McKenney and Decatur will begin within the next thirty or forty days, and we are now making preparations for the survey, with Engineer J. A. Merrywether in charge. We are going through the cotton and corn fields of Texas, touching the coal fields at Bridgeport and the cattle country west of there on to Roswell."

Gould and Gulf Exports.

In an interview at New Orleans, Vice-President A. C. Bird, in charge of the traffic of the Gould lines, said that by the end of the year the Gould system will be completed between New Orleans and Pittsburg. Asked whether there was any movement looking to the enlargement of the export business through New Orleans, he replied:

"The policy of the Gould roads will be to keep export business moving to the Gulf ports from all the territory which is naturally tributary to them. The Gould lines will use great care to see that every pound of business belonging to the Gulf ports is moved that way. The expense of passing grain and breadstuffs through the ports of New Orleans and Galveston is less than through the Atlantic ports. It is less than through New York."

Bettering Its Facilities.

Among the improvements about completed or under way for the Louisville & Nashville Railroad on the division between New Orleans and Mobile are new ballasting, the raising of the roadbed, the widening of embankments and the laying of double tracks at different points between the two cities, the relaying of the entire line with heavy steel rails and extensive terminal improvements. The cost of the work is estimated to be $750,000.

Railroad Notes.

The Norfolk & Western Railway is preparing to build at its own shops at a cost of $500,000 500 coal cars to meet the steadily-increasing traffic.

The Southern Pacific Railroad Co. is putting in about fifteen miles of siding at Sour Lake, Texas, to meet the oil situation there. Loading racks are being constructed for the accommodation of 400 cars a day.

A dispatch from Knoxville says that a large force of men have begun work for the Southern Railway, preparing to build an extension from Jellico up Clear Fork creek.

Thirty-five miles of the St. Louis, Memphis & Southeastern Railroad has been laid from Cape Girardeau, Mo., and ninety miles are to be laid to St. Louis by October 15.

It is reported that Maj. D. W. Sanders of Louisville, Ky., has completed arrangements for the building by the Kentucky Traction Co. of an electric line between Louisville and Nashville.

Mr. W. W. Vail, chief engineer of the Gulf & Ship Island Railroad, informs the Manufacturers' Record that there is no truth in the report that his company proposes to build an extension from Jackson, Miss., to Memphis, Tenn.

It is expected that within two months the Illinois Central Railway will have 200 miles of double track south of the Ohio river, and that this will shortly be increased to 300 miles, as the construction work is progressing rapidly.

It is announced that the St. Louis & San Francisco Railroad has secured control of the Ozark & Cherokee Central Railway, operating between Fayetteville, Ark., and Okmulgee, I. T., a distance of 145 miles, and that it will be operated as a connecting link between the Central division of the 'Frisco and the Red river district.

The report that the Reading, Lancaster & Southern Railroad is to be built, giving a shorter route between the anthracite coal fields and Baltimore, has suggested that if the plan be carried out the new road will make connections at Delta, Pa., with the Maryland & Pennsylvania Railroad and enter Baltimore by that line. It is further suggested that the new road might become a link in the Gould interests between Baltimore and New York.

It is reported at Houston, Texas, that the 'Frisco road has completed preliminary arrangements for the commencement of work on the extension from Brady to San Antonio; that of the three routes surveyed, the one terminating at Kerrville will be chosen, and that the 'Frisco will enter into a trackage agreement or purchase outright the Kerrville branch of the San Antonio & Aransas Pass Railroad, thus obtaining entrance into San Antonio with the completion of its lines from Brady to Kerrville.

A letter to the Manufacturers' Record from Mr. G. B. Nicholson, chief engineer of the Cincinnati, New Orleans & Texas Pacific Railway Co., a lessee of the Cincinnati Southern Railway, says that there is no truth in the report that the Queen & Crescent Route will double its track between Cincinnati and Chattanooga, and that the matter has not even been discussed in the most informal manner. He adds that the company is grading for a quarter of a mile of second track at Oakdale, Tenn., to complete a three-mile second track already built there, but that ends it.

A dispatch from New York states that a meeting of the shareholders of the Chicago, Rock Island & Pacific Railway will be held at Davenport, Iowa, on October 8 to consider the advisability of creating a bonded indebtedness not exceeding $250,000,000, maturing January 1, 1988, and interest not to exceed 4 per cent., to be used for refunding, redeeming or paying at or before maturity outstanding obligations of the company, or of constituent companies which may be acquired by consolidation, and for the purchase of ownership of shares of stock or otherwise, or the purpose of future development.

TEXTILES.

[A complete record of new textile enterprises in the South will be found in the Construction Department.]

Correspondence relating to textile matters, especially to the cotton-mill interests of the South, and items of news about new mills or enlargements, special contracts for goods, market conditions, etc., are invited by the Manufacturers' Record. We shall be glad to have such matter at all times, and also to have any general discussion relating to cotton matters.

Planning a Cotton Mill.

In a letter to the Manufacturers' Record, Mr. E. B. Miller, secretary of the Commercial Club of Fort Smith, Ark., writes regarding his plan for a $400,000 cotton mill as follows:

"There are many reasons for our building a large cotton mill. Fort Smith has added 3000 to its population during the past year. It is going to be a large city, like Kansas City. More than 100,000 are settling every year on lands west of us. Eighteen thousand coal-miners will be doubled in number in less than three years. Two new railroads are building to this city. We have three large wholesale dry-goods houses here, which send out twenty-five drummers. They would handle the output of $1,000,000 mill making sheeting and shirting. In the radius embraced by Memphis, St. Louis, New Orleans and St. Paul, or points west of the Mississippi river and to Memphis and the Orient we have at present no cotton-mill competition, and we can reach this territory in freight rates 25 per cent. cheaper than any cotton mill now in operation, the strongest competitor being at Henderson, Ky. There is no one here who could manage a mill, and if we could get a practical cotton-mill man to invest $50,000 and take charge of the deal we could get up the mill. Mr. Miller has prepared a printed circular giving minute details about conditions at Fort Smith and its tributary territory, with a summary of its progress during the past year."

Wool Clip in Texas.

A dispatch from Fort Worth, Texas, states that Capt. J. R. Franklyn, who has been representing a large wool firm in Boston for more than twenty years, traveling in Texas, has returned from a trip through the leading sheep-growing districts in Texas, among them San Angelo, Saunders, Kerrville, Spofford Junction, Del Rio and Cormick, and found great quantities of wool, either marketed or held in warehouses.

Captain Franklyn estimates that the total wool clip in Texas this season will reach 10,000,000 pounds, which is much less than it formerly was before the year 1884, when the aggregate output reached 33,000,000 pounds.

The spring wool clip marketed at San Angelo this year Captain Franklyn estimates at 2,500,000 pounds. Of this amount nearly 100,000 pounds is twelve-months' wool and brought from sixteen and one-half to seventeen cents per pound, while the remainder is short, or eight-months' wool, and brought from fourteen to fifteen cents per pound. The larger portion of the clip has already been sold, most of it going to Boston. There is 900,000 pounds of wool in warehouse at San Angelo held by growers, who expect an advance over present prices.

Company's Fourth Mill.

An additional mill will be built and equipped at Columbus, Ga., by the Muscogee Manufacturing Co. of that city. This will be the company's fourth plant, and about $200,000 will be its cost. Contract for the erection of the required building—a five-story structure, 175 feet long and 105 feet wide—has been awarded during the present week to Messrs. R. Hugger & Bro. of Montgomery, Ala. This building will be pushed rapidly to completion, and in about five months there will be installed 8000 spindles, to be increased ultimately to 16,000. The electrical drive will be used. Messrs. C. R. Makepeace & Co. of Providence, R. I., are the engineers in charge. The Muscogee plant as at present equipped operates a total of 16,000 ring spindles and 458 looms, manufacturing cheviots, fancy shirtings, ticks, denims, etc.

Pacolet Mills.

Messrs. Geo. H. Cutting & Co. of Worcester, Mass., who have the contract for repairing mill No. 3 of the Pacolet (S. C.) Manufacturing Co., are pushing work rapidly. By the flood of June 6 the engine and boiler rooms were destroyed, and the upper end of the large five-story building was washed out. The cost of repairs is estimated at $100,000, not including the machinery, the damage to which does not appear to be exactly known. Much of it was covered by sand, and it is now being cleaned. It is hoped to resume work in the mill on October 1. Nothing definite is reported about replacing mills Nos. 1 and 2, which were wholly destroyed, although the company is said to have sold most of a new stock issue to provide a new and larger mill to take the place of those demolished by the flood.

Cord and Twine Factory.

Thomas Bailey & Co. of Athens, Ga., in a letter to the Manufacturers' Record write:

"We have formed a stock company to manufacture cord, rope, twine and webbing. We want to get the names of some parties that build the machinery needed for the plant and the names of some parties that have plants of the kind and would like to come South with their machinery. We have the machinery and the boilers sufficient for a plant of this kind, and we want to put in about $50,000 in this plant to work up about 2500 pounds of cotton per day. We have a good cotton market here, about 80,000 bales being received here yearly."

Wants a Cotton Mill.

Referring to the propoistion of New Jersey capitalists to establish a $250,000 mill for manufacturing textile fabrics at Greensboro, N. C., provided Greensboro investors will take $50,000 of the stock, Mr. J. I. Westervelt, president of the Brandon Mills, Greenville, S. C., writes the Manufacturers' Record: "Can we get a like proposition for Greenville. If so, and the proper arrangements can be made, I can get up the amount called for, and that right away." He also says that he would like to be put in communication with the capitalists interested.

Lane Mills' Contracts.

The Lane Mills of New Orleans, La., has engaged Frank P. Sheldon of Providence, R. I., as engineer in charge of its proposed $500,000 addition, and is reported to have awarded contract to Cook & Laurie for constructing the two-story 180x300-foot building required. A lengthy statement concerning this addition was presented in this department on July 2. The improvements will constitute an entire new plant of 25,000 spindles and 750 looms, as previously stated, for manufacturing blue denims and other colored goods.

A New Company Formed.

Messrs. W. J. Dickey & Sons, 16 Light street, Baltimore, write the Manufacturers' Record confirming the report that the old firm has been dissolved and a new company formed under the style name of W. J. Dickey & Sons, Incorporated, with an authorized capital of $1,000,000, but the capital will be, to start with, only $328,000, and the mills will be operated as heretofore. The officers of the new concern are as follows: William A. Dickey, president; George A. Dickey, treasurer; Snowden A. Haslup, secretary.

Textile Notes.

R. L. Moye and associates of Cuthbert, Ga., are organizing company to build a knitting mill.

Messrs. W. C. Heath, John English and J. J. Crow of Monroe, N. C., propose the establishment of a hosiery mill.

Tupelo (Miss.) Cotton Mills has declared a dividend of 14 per cent. and ordered the issuance of $40,000 additional stock for the purpose of enlarging its plant. This company at present is operating 5000 ring spindles and 170 looms.

Tavora Cotton Mills of Yorkville, S. C., will add 1000 spindles, contract for which has been awarded. This company held its annual meeting during the past week, and the management's report showed that the equipment of machinery had been modernized during the year.

Messrs. J. H. McPhail and Jesse H. Thomas have purchased the Nashville (Tenn.) Hosiery Mills, which enterprise they have been managing for some time. They will improve the plant, erecting additional buildings, increasing the equipment and remodeling the dyehouse.

The assessment of the cotton mills of Greenville county, S. C., has been completed by the State board of equalization. It shows a total of $2,182,737, as opposed to $2,008,960 for 1902, an increase of $73,777. This assessment includes only the mills that have been in operation one year or longer.

Hope Mills (N. C.) Manufacturing Co. is making rapid progress with the construction of its additional plant and the improvements which were announced last year. Its enlargement involves the expenditure of about $175,000. A complete equipment of machinery to finish the goods manufactured is being installed and 200 looms are being added.

Clifton (S. C.) Manufacturing Co.'s stockholders have authorized the directors to issue $750,000 of preferred stock. This stock will be issued from time to time at the discretion of the directors. The decision as to rebuilding Mill No. 3, which was destroyed by the Pacolet valley flood in June, has been left to President A. A. Twichell. The work of rebuilding Mills No. 1 and 2 is now in progress.

Cottonseed-Oil Notes.

The Marshall Cottonseed Oil Co. has been chartered, and work on the mill will begin at once. The building will be of brick and the machinery of the latest type.

It is stated that C. W. Thompson and W. H. Hurt have bought the large cotton-oil mill at Tuskegee, Ala., formerly owned by T. Y. Conner. Messrs. Thompson and Hurt represent a proposed corporation to be known as the Tuskegee Cotton Oil Co., with a capital of $30,000.

At Memphis, Tenn., on the 1st inst. cottonseed products were quoted as follows: Prime cottonseed oil, nominal; off crude, 20 to 23 cents; prime summer yellow, nominal; choice cooking, 47 cents; cottonseed per ton by river $12, and by rail $13; cottonseed meal, $19.50 to $20 per ton, and prime cake, $21; linters, 3¼ to 3¾ cents per pound.

The Arkansas Cotton Oil Co. of Fort Smith, Ark., which spent last year over $30,000 improving its plant, proposes this year to make further important additions. Among the improvements will be the erection of a large hullhouse, 100x150 feet, two stories in height, with a capacity of 15,000 tons of hulls. Permission to lay a switch to the building has been applied for.

Work on the cotton-oil mill to be erected at Pickens, S. C., will be commenced this week. The engines and boilers have been purchased, and the ginning and oil machinery proper will be secured at once. Mr. R. C. Cureton is general manager of the mill. The other officers are W. T. McFall, president; Samuel Wilson, vice-president, and R. E. Bruce, secretary and treasurer.

At a meeting of the Summit Oil Mill Co. at Summit, Miss., on the 27th ult. the following officers and directors were elected: Dr. W. W. Moore, president; Henry Alcus, secretary-treasurer; E. S. Atkinson, assistant secretary; Wallace Atkinson and J. L. Moise. The earnings of the mill the past season have been very satisfactory, and the reserve fund was considerably increased.

The following are official quotations on cottonseed and cottonseed products as posted at the Cotton Exchange in New Orleans on the 1st inst.: Prime refined oil in barrels, 42½ cents per gallon; off refined in barrels, 36½ cents per gallon; prime crude, loose, 37 cents per gallon; prime cottonseed cake, $25.25 per ton of 2240 pounds; off prime cottonseed cake, nominal; prime cottonseed meal, $25 per ton of 2240 pounds; off prime cottonseed meal, nominal; soap stock, 80 cents; linters, per pound, choice, 4½ cents; A, 4½ cents; B, 3⅝ cents; C, 3 cents; cottonseed in sacks delivered at New Orleans, per ton of 2000 pounds, $10; in bulk delivered at New Orleans, per ton of 2000 pounds, $9.

For a Florida Refinery.

In a letter to the Manufacturers' Record Mr. Wilbur McCoy of Jacksonville, Fla., agricultural and immigration agent of the Atlantic Coast Line Railroad Co., writes as follows:

"Mr. R. E. Rose, State chemist, wrote me that certain Michigan parties who were in the sugar-beet business in that State had made a proposition to this effect—that if they could secure a contract for the growing of 2000 acres of sugar-cane within a radius of twenty-five miles of a given point in Florida, they would erect and bind themselves to operate a refinery capable of handling this acreage or more on the basis of a price for cane equal to an agreed percentage of the gross valuation of the sugar produced per acre or per ton. This proposition was submitted to the people of Bartow, as well as to the people of another point. Captain Rose advises me that his principals will visit Florida in October to see the soil and cane produced and make a selection of a location. The contract for planting cane is to cover a period of five years with responsible farmers."

The Mechanics, Dealers and Lumbermen's Exchange of New Orleans reports the receipts of lumber from August 1, 1902, to July 31, 1903, in that city at 110,143,308 feet, against 108,410,980 feet for the corresponding period in 1901 and 1902.

The Franklin County Lumber Co.'s mill at Carrabelle, Fla., cut last week the largest pine log that ever came to that place. It measured fifty-three feet in length, thirty-one inches in diameter, and made over 2000 feet of first-class lumber.

PHOSPHATES.

Phosphate Markets.

Office Manufacturers' Record,
Baltimore, Md., August 5.

A moderate volume of business is reported in the local phosphate market, and the offerings of rock during the week have been light. Fertilizer manufacturers are well supplied, the receipts of rock during July having been quite liberal. The demand, which is light, is principally from the interior. The only charters reported during the past week were the British steamship Dallonhall, 2265 tons, from a Southern port to the United Kingdom and Continent with phosphate on private terms, and the British steamship Abergeldie, 2438 tons, from Fernandina to Hamburg with phosphate, etc., at 25/, cotton basis, August. The reports as to development in the mining section of the Southern phosphate belt continue favorable, and the output at all points is not equal to the demand for shipments. The situation in Florida is regarded as very satisfactory. In the Peace river section mining is again showing up in its old form, the shipments from Punta Gorda for July amounting to 10,680 tons, and for the seven months ending July 31 shipments aggregated 39,695 tons. The output in Florida is not sufficient at present to close contracts existing, and both in hard rock and pebble shipments are delayed for want of rock. The market is firm, and contracts for 1904 will absorb a large portion of the output in both hard rock and pebble. It is stated that contracts for deliveries of hard rock have been recently made for the first six months of 1905. In Tennessee everything in the way of phosphate mining is active, and both the domestic and export demand is good. The market is firm at $3.50 per ton for 75 per cent. rock and $4 for 78 per cent. Miners are working all the hands they can get, and prominent companies will make large export shipments this month. In South Carolina business at the mines is good, there being a better domestic demand. Prices are generally very steady.

Fertilizer Ingredients.

The market for ammoniates has ruled quiet during the past week, as usual at this period of the season. There is, however, some demand from both Eastern and Southern sources. Prices throughout the list are generally firm at quotations. In the West packers are holding their stocks at outside figures.

The following table represents the prices current at this date:

Sulph. of ammonia (gas), spot.	$3 10 @ 3 12½
Nitrate of soda, spot Balto....	2 05 @ 2 07½
Blood.....	2 72½@ 2 75
Azotine (beef).....	2 57½@ 2 60
Azotine (pork).....	2 57½@ 2 60
Tankage (concentrated).....	2 45 @ 2 47½
Tankage (9 and 20).....	2 60 & 10@2 62½ & 10
Tankage (7 and 30).....	22 00 @22 50
Fish (dry).....	32 50 @35 00

Phosphate and Fertilizer Notes.

The brig Alcaca with 590 tons of phosphate rock and the schooner Major Pickands with 1140 tons cleared from Charleston, S. C., last week for Baltimore.

The annual meeting of the stockholders of the Patapsco Guano Co. of Baltimore, Md., will be held at the company's office, 1100 Continental Trust Building, on August 18 for the purpose of electing five directors.

The shipments of phosphate rock made by the Peace River Phosphate Co. from Punta Gorda for the month of July as reported by Mr. Albert F. Dewey aggregated 10,680 tons; amount formerly reported, 29,015, making a total for the seven months ending July 31 of 39,695 tons.

Congressman Robert H. Foederer of Philadelphia, Pa., who died at his home in that city last week, was the owner of the American Phosphate Co., one of the largest phosphate companies in the Mt. Pleasant field of Tennessee. It is probable that the American Phosphate Co. will be reorganized and change hands.

It is stated that the Mexican government has granted to George Beermaker of San Diego, Cal., a concession to all guano deposits upon islands, islets and points of land in the Pacific ocean under the jurisdiction of Mexico from Mazatlan to Manzanillo. The concession is regarded as the most valuable that has been granted by the government in a similar way for years.

The British steamship Aislaby cleared last week from Port Tampa, Fla., for Glasgow with 3900 tons of phosphate, shipped by John Bradley, agent. The other shipments were the British steamer Freida, which cleared for Cork, Ireland, with 2800 tons of phosphate, and the steamship Lassell for Baltimore, Md., with 2300 tons, both shipments by the Palmetto Phosphate Co.

Messrs. Read, Holliday & Sons, Limited, manufacturers of aniline colors, dyestuffs and other chemicals for textile manufacturers, will shortly open a branch office in Charlotte, N. C. This firm maintains offices in Philadelphia, New York and Boston, and in Huddersfield and Wakefield, England. The Charlotte branch is established to take care of the business the firm receives from the South and Southwest.

At Baton Rouge, La., State Fertilizer Inspector Charles H. O'Rourke is engaged in making out his annual report of the fertilizer business done in the State for the preceding year. Mr. O'Rourke states that the report now being compiled will show a large increase in the sale of fertilizers in Louisiana over preceding years, and that the sale of cottonseed meal for this purpose will amount to about 50 per cent. of the sale of all fertilizer products.

For a Rolling-Mill Site.

The American Shovel & Stamping Co. of Lorain, Ohio, is seeking a location for the erection of a rolling mill and the manufacture of some lines of merchandise which are not made at the Lorain plant. Mr. Thomas H. Martin, secretary of the company, informs the Manufacturers' Record that the product of the rolling mill would be consumed largely in this plant, but of course some of it would be for sale to the general consumer. He adds:

"We have not selected Wheeling, nor have we made any selection as yet as to location. We are seeking information from different localities in order to make a decision as to which would be the better place. We must have cheap fuel and water, low taxes and a location where competent labor and reasonable rates are readily obtainable."

The Manhattan Beach Lumber Co. and the Excelsior Manufacturing Co. of Croatan, N. C., have consolidated their interests and will immediately put in a lot of new machinery and otherwise enlarge their plants. At a recent meeting of the directors the following officers were elected: Dr. A. A. Paine, president; M. Lysle, secretary; W. E. Williams, treasurer, of the company, with offices in Philadelphia. The company is capitalized at $50,000.

A call has been issued for a convention at New Orleans on October 27 to further a movement for national control of construction and maintenance of the levee system in the Mississippi valley.

LUMBER.

[A complete record of new mills and building operations in the South will be found in the Construction Department.]

LUMBER MARKET REVIEWS.

Baltimore.

Office Manufacturers' Record,
Baltimore, Md., August 5.

During the week under review the local lumber market has shown a fairly active tone, and while the demand is not as brisk as usual, there is a steady business being transacted in nearly every avenue of the industry. Receipts of lumber continue liberal, and stocks on hand are in most cases ample for present requirements. Local buyers are purchasing more freely, and builders, yardmen and others have been in the market during the week. The offerings of North Carolina pine are more liberal and for some grades a shade easier, but generally throughout the list of values prices are well maintained. The demand for cypress lumber is moderate and values barely steady, with the movement lighter than usual. White pine continues quiet and prices steady, with holders firm in their views. The foreign demand for poplar has eased off slightly and the home inquiry is not as urgent as in July, while the offerings are liberal and values a shade easy. In all hardwoods there is a moderate volume of trade reported in oak, ash and other woods, with the demand from furniture factories, car works, wagon shops and other woodworking concerns fairly active. The foreign trade in hardwoods continues of moderate proportions, with reports from European markets not very encouraging at the moment. The London Timber Trades' Journal, in its issue of the 25th ult., has the following in regard to the market: "We are not able to say anything special of the wood trade this week. Prices at the shipping ports are maintained, though concessions in specifications and slight reductions in the less salable sizes are occasionally made to induce business. Sellers want to clear stocks if they can, but, in the belief that buyers now must come into the market, resolutely refuse offers for deal sizes below the standard quotations. In spot business there has been no more than the usual bustle which the fresh importations generally bring into play, as most of the inland buyers receive their goods overside, and this represents now the chief activity. For consumption orders are still slack, and there is nothing at present in the prospect that affords grounds for an improvement in the demand."

Charleston.

[From our own Correspondent.]
Charleston, S. C., August 3.

The outward movement in lumber and other wood products continues to rule fairly active at this and adjacent points. There is, however, no urgent demand for lumber, but a steady and substantial trade is in progress, and the inquiries from Northern and Eastern sources are becoming more frequent. Prices for both cypress and yellow-pine lumber are generally very steady. The demand for crossties is better and the industry showing up in better form. At all milling points the weather seems favorable for lumbermen, and mills are generally well furnished with orders. At interior points the industry is in good shape. At Cheraw Messrs. Wm. Godfrey & Son of that place have given the contract for building a planing mill of large capacity to be erected at the outskirts of that city. On the Cheehaw river the Charleston Lumber Co., a concern of Northern capitalists, has in operation on that stream, that empties into

the Combahee five miles above St. Helena sound, a well-appointed saw-mill of 30,000 feet daily capacity. A band mill having a daily capacity of 125,000 feet will soon be erected in addition, and when completed will easily furnish two cargoes a week. The company has 60,000 acres of timbered land in Colleton county to cut from. Forty miles of track will haul the logs to the mills. A dry-kiln is being built to prepare the lumber for Northern markets. During the past week the following lumber shipments were reported from Charleston: Schooner Anna Pendleton for New York with 521,000 feet of lumber; steamship Aragon for Baltimore with 115,000 feet; schooner Humarock for Philadelphia with 350,000 feet, and schooner Nantasket for Boston with 430,000 feet. The movement in lumber circles at Georgetown is decidedly active and all the mills are rushed with orders. Both cypress and yellow-pine lumber is firm, with a fair inquiry from the usual sources.

Savannah.

[From our own Correspondent.]

Savannah, Ga., August 3.

The local lumber market still continues quiet, with a moderate volume of business. The demand from Northern and Eastern centers is fairly active, but from Western points there is very little business reported. Local lumbermen assert that business with Western points has almost entirely ceased since the increase in rates, and that Georgia yellow-pine manufacturers are shut out of the Western market for the present. Receipts of lumber at this port from the mills in the interior are liberal, and stocks on hand will likely be quickly absorbed by vessels in port and to arrive during this month. The list of values is very steady, and prices here f. o. b. range as follows: Minimum easy-sized yard stock, $12 to $14; car sills, $14 to $16; ship stock, $22; sawn ties, $10.50 to $11 per 1000 feet; hewn ties (7x9x8½), 42 cents each; hewn ties (6x8), 28 cents, and switch ties, $11.50 per 1000 feet. The demand for crossties is better than usual, and several orders are now in the market for early shipment. Among the large shipments of lumber from this port during the week was the cargo by the British steamship Nyassa from Montreal, Canada. This cargo is said to be the largest solid cargo of yellow-pine lumber ever shipped from Savannah. It consisted of 1,932,790 feet, of which 1,886,683 feet was shipped by the Granger-Stubbs Lumber Co. and the remainder by the Georgia Lumber Co. It is stated that shipments of lumber by steamers is favored on account of quick delivery and other considerations. Within the next sixty days several cargoes of lumber quite as large as that of the Nyassa will be shipped from this port. Other shipments by steamer during the week amounted to over 1,250,000 feet of lumber. The schooner Jennie Thomas cleared for New York with 845,146 feet of yellow-pine lumber, and the schooner Blanche Hopkins for the same port with 466,420 feet. The schooner Thomas F. Pollard cleared for Philadelphia with 119,109 feet of lumber.

Brunswick.

[From our own Correspondent.]

Brunswick, Ga., August 3.

The month of July has proven to be another record-breaker in the lumber movement. The grand total of lumber shipments to both foreign and coastwise points amounted to 34,105,000 superficial feet. The coastwise shipments amounted to 30,337,000 superficial feet. The foreign lumber exports amounted to 3,768,000 superficial feet. During the same period the foreign exports of naval stores consisted of 7,445,440 pounds of rosin and 98,812 gallons spirits of turpentine. The coastwise shipments of naval stores amounted to 319 barrels of rosin and 5375 barrels turpentine. The month of July at Darien also proved to be one of considerable volume, the total lumber shipments amounting to 10,973,558 superficial feet, of which the coastwise cargoes amounted to only 461,558. The foreign exports consisted of 9,967,000 feet of sawn timber and 545,000 feet of boards. The cargoes and destinations were: Holland 4,873,000 feet and England 5,339,000 feet. At the nearby port of Fernandina the July movement was also large, amounting to a total both coastwise and foreign of over 14,000,000 superficial feet, including 59,750 pieces crossties.

Mobile.

[From our own Correspondent.]

Mobile, Ala., August 3.

The movement in lumber and timber at this port during the past week has been of greater volume than for some time past. Four steamers cleared last week with 6,700,000 feet of lumber and 260,000 cubic feet of square timber, and the shipments for the present month are likely to exceed those of July. The timber market is easy at 17 to 17½ cents for 30-foot average and 16 to 16½ cents for averages under thirty cubic feet. It is said that some of the largest shippers are sinking their timber here, and while shippers will not buy at these figures, not a foot can be bought for less. The lumber market is active and firm, and shippers find difficulty in supplying cargoes. There is a very satisfactory trade with South Africa. The Robinson Land & Lumber Co. of Chicora, Miss., and the Dantzler Lumber Co. of Gulfport, Miss., have both furnished several million feet of lumber for South Africa, and the trade with that section is showing a remarkable volume. At Pensacola there has been quite a rush during the past week, as a large fleet of vessels for timber cargoes have arrived, and there has been a demand for at least 20,000,000 feet of lumber and timber. The business of the present month is likely to exceed that of July by many thousand feet, and during the next few days it is estimated that 30,000,000 feet of lumber and timber will have left the port. There is a number of vessels now on passage to this port, and freights at the moment are very steady. During the past week the following charters were reported: The British steamer Wildcroft, 1916 tons, from Pensacola to Alexandria with timber at 92/6, August-September; British steamer Rosefield, 1959 tons, from Pensacola or Mobile to Aberdeen with timber at 81/3, option London 82/6, or Greenock 80/, August.

Jacksonville.

[From our own Correspondent.]

Jacksonville, Fla., August 3.

The record of this port in shipments of lumber and other wood products for the month of July exceeded that of any month in its history. Not only in lumber does shipments show a remarkable increase, but also in other wood products, such as shingles, crossties and naval stores. During the past month the shipments of lumber aggregated 21,065,758 feet, of which 19,369,500 feet went coastwise, 1,496,258 feet foreign and 200,000 feet of cypress lumber. Shipments of shingles amounted to 4,015,000, and crossties 64,600. The market has ruled very steady for all grades of lumber, and mills have all they can do to execute orders. The reports from timber tracts have been favorable for development, and the weather has been such that considerable timber has been cut and delivered to mills. In the list of yard values, yellow pine, all heart, is quoted at $16.50 to $17; rough-dressed, $20; No. 2, $12; No. 3, $10. Cypress is quoted at $30 for prime, and seconds, $20 to $28. The Clyde Line steamers had a fine business during the month of July, and at each trip they carried a full complement of lumber and other wood products. Great improvements have been made in the Clyde Line terminals. The improvements to the Hogan-street terminals have given the Clyde Line splendid facilities. A new pier was added on to the former dock extending fifty feet out in the water. The water-line of the warehouse was also extended to a length of 310 feet, and the additional warehouse capacity now gives this line almost double the facilities for handling freight. At a meeting of the Georgia Saw-Mill Association, held at Atlantic Beach last week, it was resolved that a large exhibit should be made at St. Louis of yellow-pine lumber. A committee was named to act in the premises and to confer with the Southern Lumber Manufacturing Association and act in concert. The Wilson Cypress Co. of Palatka has commenced cutting a fine body of cypress timber in the Redding swamp. A tram railroad will be put in to extend to Log Landing, a distance of three miles, where it will be rafted and floated down the Oklawaha river to the company's mills at Palatka.

Lumber Notes.

The Phoenix Lumber Co. of Hattiesburg, Perry county, Mississippi has been incorporated with a capital stock of $30,000.

The Wayne Furniture Co. of Wayne, W. Va., has been incorporated, with a capital of $5000, by John G. Lambert, W. P. Wilson, W. T. Barton and others.

It is stated that Messrs. Wm. Godfrey & Co. of Cheraw, S. C., have placed orders for a planing mill of large capacity to be erected on a site near the outskirts of the city.

The Ohio Land & Lumber Co. has purchased 1500 acres of timber lands, and contemplates the erection of two saw-mills at Pearisburg, Va., for developing the property.

The Atlantic Coast Lumber Co. of Georgetown, S. C., has been incorporated with a capital of $100,000. The incorporators are T. Moultrie Mordecai, P. H. Gadsden and William Austin.

The shipments of lumber from Jacksonville, Fla., for the month of July aggregated 21,065,758 feet, of which 19,369,500 feet were coastwise, 1,496,258 feet foreign and 200,000 feet of cypress.

A deal has just been consummated whereby Jeanes Bros. convey their saw-mill, four miles south of Nacogdoches, Texas, to Turner & Nabers of Beaumont, Texas. The consideration was $16,000.

The shipments of lumber from Mobile, Ala., for the week ending the 30th ult. aggregated 6,790,000 feet, and of square timber 163,000 feet. The majority of this was carried by four vessels, which cleared on the 28th ult.

The Haywood Lumber Co., which owns about 40,000 acres of timber lands in Nacogdoches and San Augustine counties, Texas, contemplates the erection of an extensive lumber-manufacturing plant at Nacogdoches.

The Norwegian steamships Romsdale and Dagbjorg, 1177 and 385 tons, respectively, arrived last week at Pensacola with mahogany logs for C. C. Mendel & Co. of Louisville, Ky. The shipments to Louisville will be made at once.

The Illinois Central Railroad has commenced the work of erecting a large plant near Grenada, Miss., where crossties will be manufactured. A contract is said to have been let to J. J. Baxter to build a three-mile line of railroad to the plant.

The Union Handle Co. of Charleston, W. Va., has commenced to prepare for putting in operation the plant recently purchased from the Kanawha Wood-Turning Co. The factory will be thoroughly overhauled and started up in a few days.

A company with a capital of $25,000 is about to be organized at Belington, W. Va., for the erection of a planing mill and woodworking factory. C. C. Vanderhoos of Clarksburg, W. Va., and George M. Serpell of Belington are the promoters of the enterprise.

From reports made by the members of the Georgia Saw-Mill Association the recent advance in lumber rates to the West has shut the Georgia yellow-pine manufacturers out of the Western market. They say that not a single order has been received since the increase.

The Taylor-Bush Lumber Co. of Roanoke, Va., has been incorporated, with a capital of from $10,000 to $50,000, for conducting a general lumber-manufacturing business. The incorporators are D. M. Taylor, L. B. Taylor, C. L. Bush, H. M. Bush and G. W. Payne.

The Chicago-Mississippi Land & Lumber Co. has been incorporated with a capital of $400,000. This concern is to be domiciled at Greenville in Washington county, Mississippi. The incorporators are F. B. and H. Y. McMullen, J. M. Cashin and R. B. Campbell.

The Magnolia Lumber Co. of Dardanelle, Ark., has been incorporated with a capital stock of $10,000, of which $7500 has been subscribed. The officers of the company are: A. B. Cox, president; Saml. Bradley, vice-president, and Chas. C. Conlee, secretary and treasurer.

The new hardwood flooring factory of the Nashville Hardwood Flooring Co. in West Nashville, Tenn., is now complete and in good running order. John B. Ransom is president of the new concern; W. K. Phillips, vice-president, and Arthur B. Ransom, secretary and treasurer.

The British steamer Poplar Branch, which has just been loaded at Mobile, Ala., by the Sutherland-Innes Company with nearly 3,500,000 feet of lumber and timber, sailed on the 29th for Pensacola, where she will take on the remainder of her cargo, making 4,000,000 feet in all.

The Hendersonville Hardwood & Manufacturing Co. of Hendersonville, N. C., with a capital of $25,000, has been incorporated. The incorporators are Arthur T. Coll of Chicago, J. H. Jordan of Hendersonville and others. The company will deal in lumber and manufacture articles in hardwood.

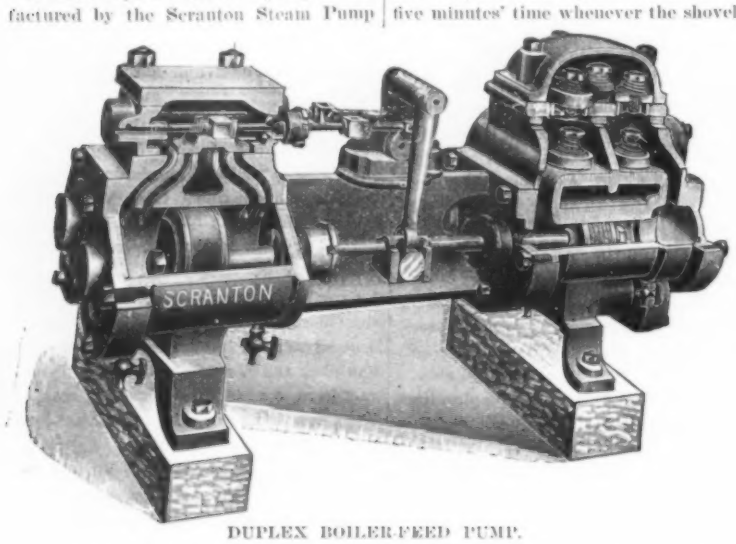
The Wilson Cypress Co. of Palatka, Fla., has commenced cutting its fine body of cypress in Redding swamp, near Fort McCoy. It is estimated that the company will cut 2,000,000 feet there, which will be shipped by railroad to Log Landing and floated down the Oklawaha river to the company's mills at Palatka.

The Georgia Saw-Mill Association held its regular monthly meeting on the 27th ult. at Atlantic Beach, Fla. Mr. W. Stilwell presided, and Mr. E. C. Harrell acted as secretary. There was a large attendance of saw-mill men present from Georgia and Florida, and some interesting matters were discussed. It was decided to have a large and prominent exhibit of yellow-pine lumber at the World's Fair at St. Louis, and a committee was appointed to report at a subsequent meeting. A committee was appointed to engage the services of an expert lumber inspector for the association.

MECHANICAL.

Duplex Boiler-Feed Pump.

A small duplex boiler-feed pump manufactured by the Scranton Steam Pump Co. of Scranton, Pa., is shown in the accompanying illustration. This pump, which is named the Scranton, has two steam and two water cylinders, the valve between them being operated by the piston through the medium of a system of levers. This method of construction produces a slight pause at the end of each stroke, thus permitting the valve to set quietly, avoiding shock. The claim is made that the pump will maintain a water pressure within a few pounds variation at any normal speed.



DUPLEX BOILER-FEED PUMP.

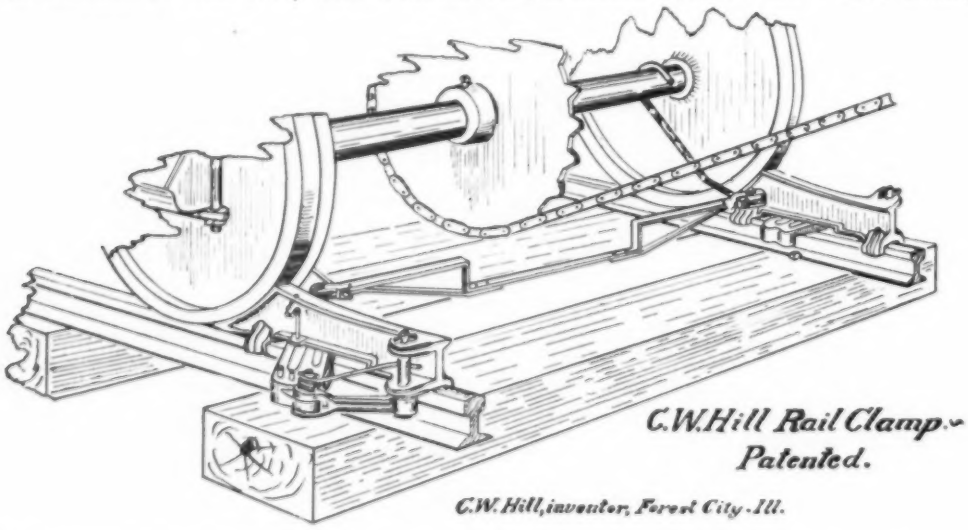
It is stated that the connections of this new pump are heavier than are usually found in such machinery. The bearings are wide and durable, and much liberality is shown in the disposition of metal in the various parts of the machine. The manufacturer states that it will be glad to send one of the pumps to any responsible house on application.

Furthermore, this corporation, which is well known as a manufacturer of heavy mining pumps, also makes, in connection with this duplex boiler-feed pump, an automatic receiver for draining heating systems, separators, coils, etc., particulars of which may be obtained upon request.

Automatic Rail Clamp.

An invention designed to prevent backward movement of steam shovels, excavators and other machines when in use is shown in the illustration herewith. It is known as Hill's automatic rail clamp, and the picture clearly presents the method of its operation. While the clamp is designed to prevent backward motion, it is also intended to permit of free forward movement of machine to which attached.

The clamp is described as gripping the rail and as being clear of bolts and straps, yet its action is positive and automatic, and will, it is claimed, save from three to five minutes' time whenever the shovel is moved forward, that being about the time required for blocking the machine in the old way. By the use of this clamp, it is also stated, the truck is prevented from slewing, getting out of line and breaking bolts, because the wheels are solidly and evenly blocked. When climbing heavy grades the clamp is also said to be valuable by reducing the chance of accident.



John T. Driscoll & Co., 13 McCormick Block, Chicago, are general sales agents for the Hill automatic rail clamp, and offer to ship on ten days' trial, the clamp to be returned, if not purchased, to the factory at Pekin, Ill.

Notes from Northern Machine Shops.

By Chas. A. Gingrich, M. E.

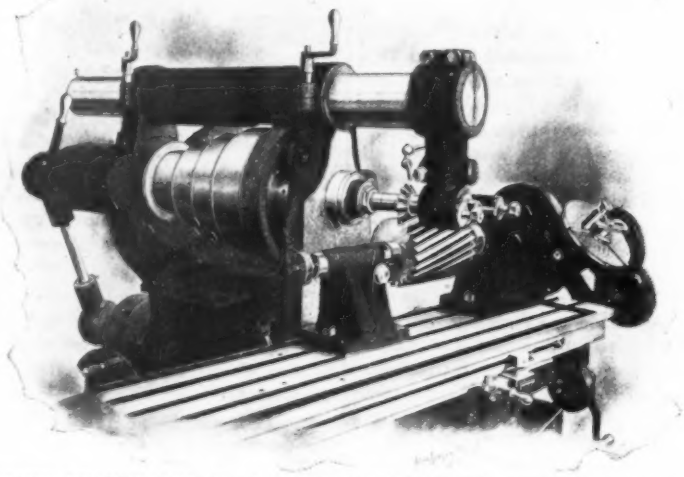
IV.

The extensive use of large quantities of small tools, such as milling cutters, reamers, taps, etc., has developed such a great demand for these tools that their manufacture is now becoming quite an extensive independent industry, there being several good-sized concerns which make the manufacture of small tools a specialty.

A large percentage of these small tools have spiral flutes, and one of the drawbacks to their economical manufacture has been the weakness of the universal miller, on which machine most of this work is done. There has been considerable improvement in this line lately, and in several of the largest small-tool factories I have seen this work done in about half the time that was formerly required.

The accompanying illustration shows one of the machines that are giving the best results that have thus far been obtained in milling the flutes in large spiral milling cutters in operation, and incidentally shows how such work is mounted on the No. 3 Universal Cincinnati Miller.

This particular machine, it will be seen, is fitted with the gear-feed drive, for which these machines are noted, and the work is held between centers of a spiral generating head which was especially designed for this heavy class of work. The material being milled is unannealed tool steel, five and one-half inches diameter, with flutes at a 45-degree angle. The space which is milled between flutes is one-half inch deep and approximately three-quarters of an inch wide at the top. This machine removes all this metal at a single cut at a table-travel of three-quarters of an inch per minute. A final light finishing cut to smooth the groove is taken at a table-travel of more than one and one-sixteenth inches per minute. This is considered by toolmakers to be very fast work. The great difficulty in work of this kind is usually caused by the tendency of the machine to "chatter." And it is only fair to state that in the job illustrated this tendency was entirely absent.



MILLING UNANNEALED TOOL STEEL 5½" DIAMETER—FLUTES AT A 45 DEGREE ANGLE.

SUGGESTION FOR CAPITALISTS.

A Proposed Steam or Electric Road in West Virginia.

Editor Manufacturers' Record:

Permit me to invite, through your columns, the attention of capitalists to the opportunity for profitable investment in the building of a steam or electric railroad from Ronceverte, W. Va., across Monroe county to Lurich, in Giles county, Virginia, on the Norfolk & Western Railway. The connecting link between the Greenbrier division of the Chesapeake & Ohio Railway and the West Virginia Central & Pittsburg Railway has just been completed through Pocahontas and Randolph counties, West Virginia, and on August 2 regular passenger and freight service was commenced, trains starting from Elkins and Ronceverte and meeting at Durbin, on the northern verge of Pocahontas county.

This means that there is now open an all-rail route from Pittsburg and outlying districts in Pennsylvania and West Virginia teeming with a dense population and multitudinous industries, through rich coal fields and vast forests of timber to a southern terminus at Ronceverte. With the perfecting of connections soon to be made down will come from the North a tide of traffic and travel seeking outlet southward. Take the map and observe the irresistible trend of the situation. Twenty-five miles south of Ronceverte the Virginia fields of iron ores begin; a little further on lie the immense coal-mining districts of Flat Top and Southwest Virginia, while around and beyond is the great busy and growing South, with its thriving towns and opulent field for trade. But to reach these now by rail from Ronceverte it is necessary to travel either 200 miles westward to Kenova and back by the Norfolk & Western, or 150 miles eastward to Roanoke and Radford.

A railroad southward from Ronceverte across Monroe county via Union, Salt Sulphur Springs and Red Sulphur Springs to Lurich, on New river, would tap the Norfolk & Western within a few miles of Radford on the one hand and Bluefield on the other, giving access over its main line and Clinch valley branches to the whole Southern country, and supplying Pittsburg with a direct north-and-south all-rail connection therewith. The distance from Ronceverte to Lurich over a feasible route is forty-eight miles through one of the most fertile and picturesque bluegrass countries in the world. In the southern part of the county the Brush Creek oil field is now being developed. The grades are perfectly practicable, the natural route being for the most of the distance along watercourses. For an electric road Greenbrier river and two large creeks further south could be utilized to furnish the motive power at the least cost. The enterprise would find a welcome from the people and such aid as is within their means.

If men who make it their business to captain such undertakings will examine this project we are convinced they will find that it offers every promise of profit. Will the Manufacturers' Record use its great influence in presenting this matter to their consideration?

A. S. Johnston.

Union, W. Va.

CONSTRUCTION DEPARTMENT.

THE MANUFACTURERS' RECORD seeks to verify every item reported in its Construction Department by a full investigation and complete correspondence with everyone interested. But it is often impossible to do this before the item must be printed, or else lose its value as news. In such cases the statements are always made as "rumored" or "reported," and not as positive items of news. If our readers will note these points they will see the necessity of the discrimination, and they will avoid accepting as a certainty matters that we explicitly state are "reports" or "rumors" only. We are always glad to have our attention called to any errors that may occur.

*Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery, Proposals and Supplies Wanted."

In correspondence relating to matters reported in this paper, it will be of advantage to all concerned if it is stated that the information was gained from the Manufacturers' Record.

IMPORTANT!

It often occurs that a communication merely addressed in the corporate name of a newly-organized company or enterprise cannot be delivered by the postmaster, as the institution has not yet become a matter of public record or knowledge, and in addressing all new companies reported in these columns, it is desirable to add the name of one or more incorporators or interested parties located in the city or town where the new company is established, or address the interested parties at their individual address, as may be shown in the published item. This will help to insure prompt and quick delivery of your communication, though it is inevitable that some failures on the part of the postal authorities to deliver mail to new concerns will occur.

It is suggested to advertisers and readers that in writing to individuals and firms reported in these columns it is inadvisable to simply send circular matter. A letter written specifically about the matter reported is likely to receive quicker and surer attention.

American Shovel & Stamping Co., Lorain, Ohio, in letter to Manufacturers' Record states that it has no intention of removing its present business, but is seeking location in the South for erection of a rolling mill and the manufacture of some lines of merchandise which it is not making at its Lorain plant. Company was reported lately under Wheeling as investigating that point as site for proposed steel works.

ALABAMA.

Alexandria—Ginnery.—Oxford Oil Co. is erecting ginnery.

Birmingham—Steam-heating and Supply Company.—Chartered: Birmingham Steam Heating & Supply Co. has been incorporated, with capital of $2000, by William P. Bissett, James F. Johnston and Robert D. Johnston, Jr. Company will enlarge its general contracting business in the line of plumbing and steam heating.

Birmingham—Printing Plant.—Kant Printing House has been incorporated, with capital of $8000, for conducting general printing business, by W. N. Kant, J. B. Bicknell and W. J. Gilmore.

Mobile—Marine Ways.—Contracts for pile-driving and dredging for new marine ways to be built by James Gibboney and William Thompson have been awarded; will be 400 feet long with capacity of 800 tons, constructed so as capacity may be increased at any time to accommodate vessel of 1500 tons. Work will be under supervision of William Thompson.

Selma—Brewery.—It is reported that Atlanta (Ga.) parties have purchased site at Selma and will make arrangements at once for erection of brewery. Names of interested parties will be announced later.

Tuskegee—Cotton-oil Mill and Electric-light Plant.—Tuskegee Cotton Oil Co. has been organized, as recently reported, and purchased the T. Y. Conner Oil Mill and Ginnery, which it will operate. Company will also install electric-light plant in connection with oil mill and for lighting the town. Address C. W. Thompson, president.

ARKANSAS.

El Dorado—Light and Power Plant.—El Dorado Light & Power Co. has been incorporated, with capital of $7500, and will acquire the properties and business of the Smith-Lake Light Co. at El Dorado. Company also contemplates construction of system of water-works. Address E. H. Smith. James H. Stevenson of Little Rock (president), E. H. Smith, Roy D. Campbell and E. H. Lake are the incorporators.

Fort Smith—Cotton-oil Mill.—Arkansas Cotton Oil Co., H. F. H. Eberts, vice-president, Little Rock, Ark., will make improvements to its Fort Smith mill, including erection of two-story hullhouse 100x150 feet, with capacity of 15,000 tons of hulls.

Helena—Street Improvements.—The Helena Paving District No. 1 has been formed for purpose of paving the main street of Helena with vitrified brick at cost of $50,000. C. H. Purvis is engineer in charge of work. No contract has been awarded.

Hope—Spoke Factory—Arkenosha Spoke Co. has been incorporated, with capital of $30,000, for manufacture of spokes, etc. W. R. Oliver is president; W. R. Bentley, vice-president, and T. A. Shelton, secretary-treasurer.

Jonesboro—Mercantile.—Chartered: J. E. Jordan Dry Goods Co., with capital of $15,000, by M. C. Townley and others.

Little Rock—Sewerage.—Pulaski Heights Improvement Co. will construct 6300-foot sewer on Pulaski Heights, as reported last week. Frank Gibb prepared the plans; contract not yet awarded.

Little Rock—Land Improvement.—Fernvale Land Co. has been incorporated, with capital of $20,000, by John H. Page, W. M. Kavanaugh, John H. Dye and others, for conducting real-estate business.

Pine Bluff—Power-house.—Citizens' Light & Transit Co. will repair at once damage caused by fire to its power-house. J. B. Trescott, general superintendent, may be addressed.*

Pine Bluff—Street Paving.—Zeb Ward, president Mississippi Valley Construction Co., Little Rock, Ark., has been awarded contract (as lately reported) for paving one mile of street at Pine Bluff; cost $50,000. I. P. Shelby is engineer in charge. All contracts have been closed.

Warren—Immigration.—Chartered: Bradley County Immigration Co. has been incorporated, with capital of $12,000, and H. B. Van Valkenburgh, president; L. J. Burbridge, secretary-treasurer.

FLORIDA.

Apalachicola—Planing Mill and Furniture Factory.—John Marshall & Co. are rebuilding planing mill and furniture factory lately reported burned.*

Arcadia—Cannery.—Will Whidden is erecting fish cannery.

Bartow—Sugar Mill.—The Michigan parties who were reported in a recent issue of the Manufacturers' Record as investigating with a view to establishing central sugar-cane factory in Florida with capacity of 750 tons of cane per day of twenty-four hours at cost of $500,000, are said to be in correspondence with R. E. Rose, State chemist, Jacksonville, Fla., relative to the establishment of such a factory, and have made proposition stating that if they could secure contract for the growing of 2000 acres of sugar-cane within a radius of twenty-five miles of a given point in Florida they would erect and operate a refinery capable of handling this acreage, which proposition has been submitted to the people of Bartow.

Jacksonville—Oil Wells, Saw-mills, etc.—Georgia & Florida Development Co. has been incorporated, with capital of $100,000, for operating oil wells, turpentine stills, developing phosphate lands, erecting saw-mills, dealing in and improving real estate, etc. E. E. West of Jacksonville is president; G. W. Hyde, Gainesville, vice-president; L. A. Fraleigh, Madison, treasurer, and C. H. Hargraves, Jacksonville, secretary.

Jacksonville—Fertilizer Factory.—A. Cosmo Little has purchased fertilizer factory in South Jacksonville of the Little Bros. Fertilizer & Phosphate Co.

Jacksonville—Fertilizer Factory.—E. O. Painter Fertilizer Co. will erect fertilizer plant at cost of $100,000 with capacity of forty tons per day; plant will include storage-rooms or bins, mills for grinding, furnaces for burning pyrites, etc.

Key West—Cigar Factory.—Roy Lopez Cigar Co. of New York will put in operation cigar factory at Key West.

St. Augustine—Artesian Well.—C. Meltin will sink artesian well for irrigation purposes.

GEORGIA.

Atlanta—Subpower Station.—Georgia Railway & Electric Co. has purchased $250,000 worth of new machinery for the equipment of two subpower stations for generation of electricity.

Buford—Electric-power Plant.—Winding Shoals Electric Power Co. has been incorporated for development of water-power of Chattahoochee river near Buford to generate electricity for manufacturing and lighting purposes and for operating electric railway. H. I. Jacquish of Gainesville, Ga.; D. B. Stancliff and A. M. Stancliff of Atlanta, Ga.; G. W. Winslow and W. W. Gorham of Chicago, Ill., are the interested parties.

Columbus—Land Improvement.—Company reported recently to be organized by Ernest Hill and associates for improvement of thirty-eight acres of land purchased near Columbus, has been incorporated as the Greenwood Land Co., with capital of $25,000, by Ernest Hill, John F. Flournoy, Frank J. Garrard and others.

Columbus—Cotton Mill.—Muscogee Manufacturing Co. will build additional mill of 8000 spindles and ultimately install 16,000 spindles. Contract for erection of five-story 105x175-foot building let to R. Hugger & Bro. of Montgomery, Ala.; C. R. Makepeace & Co. of Providence, R. I., engineers in charge. About $200,000 will be expended.

Columbus—Cornmeal Mill.—City Mills Co. will increase capacity from 5500 to 8000 bushels of meal per day; another water-wheel will be installed, developing about 200 horse-power.

Decatur—Sewerage System.—City contemplates constructing sewerage system. Address "The Mayor."

La Grange—Harness Factory.—J. B. Holle has established harness factory.

Macon—Telephone System.—Harry H. Stearn of New York, Wm. A. Collins of St. Louis, Mo., and Henri Yuller of Philadelphia, Pa., are investigating with view to constructing telephone system in Macon.

Wright.—Garbutt Lumber Co. will rebuild saw-mill lately burned. Machinery has been secured.

KENTUCKY.

Alexandria—Book Machinery Company.—Crawley Book Machinery Co. has been incorporated, with capital of $40,000, by Arthur Crawley, Walter A. Knight and John P. Crawley.

Grayson—Oil and Gas Company.—Triplett & Tygert Valley Oil & Gas Co. has been incorporated, with capital of $20,000.

Harrodsburg—Electric-power and Ice Plants.—Harrodsburg Electric Power & Ice Co. has changed name to the Crystal Ice Co.

Hawesville—Water-works.—City contemplates constructing system of water-works. Address "The Mayor."

Lexington—Real Estate, etc.—Central Mississippi Company has been incorporated, with capital of $200,000, for development and improvement of real estate by erection of factories, mills, etc. Incorporators are Smith P. Kerr, John C. M. Day and Floyd Day of Winchester, Ky., and Chas. H. Stoll of Lexington, Ky.

Louisville—Horse-stall Factory.—Stilzer Stall Co. has been incorporated, with capital of $10,000, by J. B. McCormick, David Stilzer of Louisville, Frank McCormick of Charlestown, Ind., and others, for manufacture of patent horse stalls.

Louisville—Publishing.—Caron Directory Co. has been incorporated, with capital of $20,000, by Chas. L. Caron and others.

Louisville—Mercantile.—Louisville Grocery Co. has increased capital from $75,000 to $100,000.

Louisville—Candy and Cracker Factory.—Loose-Wiles Cracker & Candy Co., Kansas City, Mo., is investigating with view to establishing candy and cracker factory in Louisville.

Louisville—Machine Shops.—It is reported that the Illinois Central Railroad has optioned eighty acres of land near Louisville as site for erection of shops; J. T. Harahan, second vice-president, Chicago, Ill.

Marion—Coal Mines.—Crittenden Coal & Coke Co. has been incorporated, with capital of $30,000, by H. H. Sayu, Press Maxwell, John W. Bruce, Harry A. Hayes and others.

Mayfield—Electric-light Plant and Water-works.—City contemplates the purchase of the Gravis county water and light plant, but should purchase not be made, city will consider question of constructing plants, as recently reported; T. W. McNully, city clerk.

Paducah—Picture-frame and Molding Factory.—Rex Manufacturing Co. of Chicago, Ill., manufacturer of picture frames and molding, has, it is said, made proposition for establishment of factory at Paducah.

Paducah—Sewerage.—City contemplates extending its sewerage system. Address "The Mayor."

LOUISIANA.

Alexandria—Breakwater.—I. W. Sylvester, engineer, has made survey and is preparing plans and specifications for building a breakwater to protect city front on Red river; will be constructed of timber and rock at cost of $5000.

Jennings—Oil Wells.—Ladies' Oil Co. has been incorporated, with capital of $25,000, by Mrs. William Rabb of Lake Charles, La., and others, for development of oil wells.

Jennings—Mercantile.—Chartered: Walker Dry Goods Co., with capital of $50,000, for conducting department store, and will, it is said, erect building.

Jennings—Oil Wells.—Excelsior Oil Co. has been incorporated, with capital of $35,000, for development of oil wells, by I. N. Mudgett, Francis Chavanne, W. E. Cline, August Colbert and others.

New Orleans—Slaughter-house.—Crescent City Slaughter-House Co., Ltd., will expend $50,000 in improvements, which include installation of new boilers and electrical generators, increased refrigerating capacity, etc.

New Orleans—Rice, etc., Company.—L. H. Collet, Lyle Saxon, Louis Albert Morphy and others have incorporated the Collet Company, Limited, with capital of $5000, for dealing in rice and rice products, sugar, sugar-cane, etc.

New Orleans—Macaroni Factory.—S. Messina Macaroni Manufacturing Co. will erect macaroni factory to be operated by electricity. Robert Palestine has contract.

New Orleans—Land Cultivation.—Albert Mackie, J. Watts Kearny, A. R. Blakely, Henry Lehman and others have incorporated the Southern Rubber Plantation Co., Limited, with capital stock of $1,000,000, for planting and cultivating rubber trees, sugar-cane, fruits, etc.

Wardville (not a postoffice)—Timber Lands. Bennett Hardwood Lumber Co. of Memphis, Tenn., has purchased 2000 acres of timber land near Wardville, and will remove one of its saw-mills to that point for developing the property.

MARYLAND.

Annapolis—Seawall.—Latta & Terry Company of Baltimore, Md., has received contract at $141,000 for construction of seawall in connection with improvements to be made at Naval Academy, Annapolis.

Baltimore—Publishing.—Palonia Publishing Co. has been incorporated, with capital of $4000, by Robert Milaniez, John Cerski, Adam S. Gregorius and others.

Baltimore—Furniture Company.—National Furniture Co. has been incorporated, with capital of $10,000, by Thomas Costello, John Schmidt, Ernest Vogel and others.

Baltimore—Machine Shop.—W. H. H. Stevenson has awarded contract to John T. Buckley for erection of his proposed two-story brick machine shop; cost $10,500.

Baltimore—Electric Company.—Holmes Electric Co. has been incorporated, with capital of $10,000, for manufacturing and dealing in electrical appaartus, by Gwyllyn R. Holmes, Wm. H. Rose, Thomas Sudler and others.

Chestertown—Gas Plant.—Nathaniel T. Meginniss of Baltimore, Md., has been

granted franchise for erection of gas plant at Chestertown to supply light, heat and power.

Frederick—Sewerage System.—C. E. Ehrhart, Charles Paddock of Hanover, Pa.; F. B. Smith, James E. Walker, Thomas H. Haller of Frederick and associates have applied for franchise for construction of $50,000 sewerage system.

Frederick—Iron Foundry.—Montrose Iron and Steel Works has been incorporated, with capital of $25,000, by Thomas M. Diven, Wm. P. Diven of Prince George's county, Maryland; Chas. F. Rothenhoefer, Frederick; Chas. W. Demmy of Baltimore, Arthur Latterner of Washington, D. C., to operate foundry in Frederick, buildings for which are now being erected.

Germantown — Elevator.— Bowman Bros. are erecting steel storage elevator of 10,000 bushels capacity in connection with their flour mills.

Hagerstown—Timber-land Development.—Bear Pond Lumber, Coal & Oil Co., recently reported incorporated with capital of $250,000, will arrange at once for development of 333 acres of oil, gas and timber properties in Washington county, Maryland; no architect has been engaged, and contracts for machinery have not been awarded. P. M. Mishler is president; D. P. Stackhouse, vice-president; J. M. Newcomer, treasurer, and C. L. Keedy, secretary.

Hagerstown — Screen-door Factory.—Company is being organized, with capital of $10,000, for establishing screen-door and window factory, by Owen D. Sherly, E. A. Wareham, S. H. Long, M. P. Moller and D. C. Gilbert.

Hancock—Cement Company.—Hancock Cement Co. has been incorporated, with capital of $250,000, to prospect for, open up and work cement quarries. Directors include Albert H. House, New York city; Charles L. Bauer, Springfield, Ohio; Milton B. Crowell of Norfolk, Va.; Geo. H. Hagar, Hagerstown, Md.; J. Frank Fields and John Brooks of Hancock.

Havre de Grace—Bakery.—Geo. L. Parks will rebuild bakery recently burned. Geo. V. Mitchell has contract for erecting building.

Henryton—Bridge.—Commissioners of Carroll and Howard counties have decided to construct iron bridge over Patapsco river at Henryton. Mr. Disney of Baltimore is engineer. No contracts have been awarded; Oct. Denies, agent and superintendent.

Phoenix — Improvement Company. — The Phoenix Industrial Association has been incorporated, with capital of $1000, by Wesley A. Royston, William M. Mays, O. V. Hare and others for the purpose of improving and developing the town of Phoenix by encouraging industrial enterprises, etc.

Phoenix—Carpet Factory.—It is reported that William J. Stover and Joseph H. Morris will establish carpet-manufacturing plant.

Washington, D. C.—Transportation.—Great Falls Transportation & Amusement Co. has been organized at Cabin John Bridge with C. Shoateau Nordlinger, general manager, for conducting automobile transportation business.

Washington, D. C. — Sugar Company. — United States Sugar Co. has been incorporated, with capital stock of $5,000,000, by Chas. W. Pimper, George W. Nash, Fred W. Ray and Ernest H. Coolidge, for purpose of planting, manufacturing and refining sugar. Office will be in Bond Building.

Williamsport—Shoe Factory.—W. D. Byron & Sons will establish shoe factory.

MISSISSIPPI.

Brookhaven—Tag and Showcase Company. Scott-Cameron Detachable Tag & Showcase Co. has been incorporated, as recently reported, with capital of not less than $1000 nor more than $30,000, and has not as yet made any arrangements for the manufacture of its goods, but expects to do so in the near future.*

Ellisville — Water-works.—City will hold election to vote on issue of $20,000 of bonds for water-works. Address "The Mayor."

Forest—Water-works.—City has voted issuance of $4000 of bonds for equipping water-works system. Address "The Mayor."

Greenville—Land Improvement.—Chicago-Mississippi Land & Improvement Co. has been incorporated, with capital of $400,000, by F. B. McMullen, H. Y. McMullen, J. M. Caslin and R. B. Campbell.

Hattiesburg—Lumber Company.—Phoenix Lumber Co. has been incorporated, with capital of $30,000.

McComb—Cotton Gin.—J. W. Johnson and W. M. White will erect cotton gin in South McComb.

McComb—Ice Plant.—H. McColgan has purchased additional machinery for increasing capacity of his ice factory.

Sardis—Clothing Factory.—J. R. Buchanan and others contemplate establishing factory for manufacture of overalls and jumpers.*

Tupelo—Cotton Mill.—Tupelo Cotton Mills will increase capital by $40,000 for enlarging its plant of 5000 spindles and 170 looms. Present capital is $125,000.

Vicksburg—Water-works.—Citizens' Water-Works Co. is name of organization reported lately to be formed for sinking artesian wells to supply water for city. B. W. Griffith is interested.

MISSOURI.

Carthage—Mining.—Luke & Brown Mining Co. has been incorporated, with capital of $50,000, by James Luke, Jamot Brown and Bryon Ash.

Independence—Telephone System.—Home Telephone Co. is being organized by S. H. Woodson, A. J. Bundschu, J. S. Haley, A. F. Sawyer and others for operating the system being constructed by J. S. Haley and associates, to whom franchise has been granted. Multiple switchboard with capacity of 1600 'phones will be installed.

Joplin—Zinc Mines.—Carrie Lead & Zinc Mining Co. has been incorporated, with capital of $50,000, by P. M. Bransfield, C. L. Fichnel, W. S. Zehring and others.

Joplin — Mining.— Chartered: Mamie B. Mining Co., with capital of $50,000, by Chas. Martin, I. M. Bransfield, J. N. Doty and others.

Kansas City—Ice Factory.—Company will be organized with capital stock of $500,000 for erection of ice factory. Names of interested parties will be announced later.

St. Louis—Mercantile.—Chartered: Manheim Five & Ten Cent Store, with capital of $9000, by Julius Manheim and others.

St. Louis — Trading Company. — Pacific Trading Co. has increased capital from $5000 to $15,000.

St. Louis—Coal Mines.—Coaleo Fuel Manufacturing Co., for development of coal mines, has been incorporated, with capital stock of $500,000, by M. W. Cattle, Stanley M. Riggs and G. F. Sultzbach.

St. Louis—Pastry Company.—H. S. Mundy Pastry Co. has been incorporated, with capital of $20,000, by H. S. Mundy, M. C. McNelly, M. J. Scherer and others.

St. Louis—Delivery Company.—Chartered: Brooks Express & Hauling Co., with capital of $3500, by Henry Brooks and others.

St. Louis — Delivery Company.—General Service Co. has been incorporated, with capital of $200,000, for conducting delivery service business, by J. M. Allen and others.

St. Louis — Hotel Company.—Chartered: Christian Endeavor Hotel Co., with capital of $2000, by Murray Carleton and others.

St. Louis—Livery and Undertaking Company.—Chartered: W. S. Gregory Livery & Undertaking Co., with capital of $8000, by W. S. Gregory and others.

St. Louis—Realty Company.—Alta Realty Co. has been incorporated, with capital of $400,000, by E. B. Haymond, A. F. McIntyre, W. J. Atkinson and others.

St. Louis—Lath and Manufacturing Company.—Chartered: National Patent Lath & Manufacturing Co., with capital of $100,000, by George Barnett, John E. O'Brien, P. J. Moynihan and others.

St. Louis—Coal Company.—Barth-Rose Coal Co. has increased capital from $30,000 to $50,000.

NORTH CAROLINA.

Ashboro—Chair Factory.—Company is being organized, with capital of $15,000, for establishing chair factory. Oscar Redding is interested.

Burlington—Building Company.—Piedmont Building Co. has been incorporated, with authorized capital of $50,000, by W. K. Holt of Burlington, B. L. Mayfield of Graham and William P. Rose of Raleigh.

Burlington—Structural-iron Works.—Carolina Steel Bridge & Construction Co. has increased its paid-up capital from $105,000 to $150,000.

Cherokee County—Land Improvement.—Alexander B. Heffernan of Chicago, Ill., has closed deal for 90,000 acres of timber and agricultural lands in Cherokee county, North Carolina, his purpose being to colonize the southern part of the county.

Concord—Ice and Light Company.—Concord Light & Ice Co. has been incorporated, with capital of $75,000, to operate light, power and ice plants, by Thomas A. Scott, Frank Harrison and Sam Price.

Concord—Gold Mines.—Captain Tamblyn, representing an English syndicate, has purchased additional gold-mining properties in Cabarrus county, North Carolina, including the Furr, Crayton, Newell and Linker mines, and will install new machinery at once for working same on extensive scale.

Cuthbert—Cotton Mills.—Clifton Manufacturing Co. has authorized $750,000 preferred stock to be issued from time to time. This company is reconstructing mills Nos. 1 and 2, damaged by the flood in June, and the rebuilding of mill No. 3 has been left to A. A. Twichell, president.

Dardens — Mercantile.— Chartered: Jones Mercantile Co., with capital of $10,000.

Haywood — Bridge. — Carolina Steel & Bridge Construction Co. of Burlington, N. C., has contract at $5670 for construction of steel bridge over Haw river at Haywood.

Hendersonville—Hardwood Factory.—Hendersonville Hardwood Manufacturing Co., with authorized capital of $25,000, has been chartered by Arthur G. Cole of Chicago, J. H. Jordan and Swann Jordan of Hendersonville.

Indian Trail—Gold Mines.—R. E. Whaley and J. L. Younts have installed new 10-stamp mill at their mines.

Laurinburg — Electric-light Plant. — W. Drummond Marrow, electrical engineer, Charlotte, N. C., has been selected by board of commissioners of Laurinburg to prepare plans and specifications for and install electric-light plant; cost $10,000.

Monroe—Fertilizer Factory.—Crow Bros. will establish fertilizer factory at cost of $50,000.

Monroe—Knitting Mill.—W. C. Heath, John English and J. J. Crow propose establishing a hosiery mill.

Pine Bluff—Electric-light Plant.—Company is being organized for erection of electric-light plant to light the city. Address Board of Trade.

Shelby—Power Company.—The Lilly Mill & Powder Co. has changed its name to the Lilly Mill & Power Co., with capital of $50,000.

Salisbury—Ice Plant.—Salisbury Ice & Fuel Co. will enlarge its ice plant, and has not awarded contract for machinery.

Salisbury—Street Improvements.—City has decided by popular vote to issue $90,000 of bonds for street improvements previously mentioned. Address "The Mayor."

Washington—Hardware and Supply Company.—Washington Hardware & Supply Co. has been organized by Carl H. Richardson and John H. Fulford for dealing in hardware of all kinds, farming implements, etc.*

Waynesville—Laundry.—Wm. H. Liner and J. A. Wheeler will establish steam laundry.

Whiteville — Lumber Mill. — Whiteville Lumber Co. is installing new boiler for increasing capacity and making other improvements.

Winston — Water-works, Sewerage and Street Improvements.—City will vote August 31 on issuance of $100,000 of bonds for improvement and extension of sewerage system and water-works and for street improvements. Address "The Mayor."

SOUTH CAROLINA.

Anderson — Water-power Development. — Local parties have purchased from J. J. Fretwell his water-power at Hatton's Ford, on Tugaloo river, and will organize company for developing same electrically. It is said that 6600 horse-power is available.

Beaufort — Saw-mill.—Charleston Lumber Co. will erect additional mill of 125,000 feet daily capacity.

Camden—Coffin and Casket Factory.—Camden Coffin & Casket Co. will increase its capital stock and enlarge by erection of three-story brick building.

Central—Stock Farm and Nursery.—Oscar M. Watson of Clemson College, S. C., will establish stock farm and nurseries near Central and operate as the Chicola Farm and Nurseries.

Charleston County—Land Improvement.—N. N. Matthews, 7043 Monticello street, Pittsburg, Pa., is interested in the organization of the Co-operative Land Co., with capital of $200,000, for purchasing and improving properties in Charleston and Berkley counties, South Carolina.

Charleston—Lumber Company.—The Atlantic Coast Lumber Co. has been incorporated, with capital of $100,000, by T. Moultrie Mordecai, P. H. Gadsden and William Austin.

Charleston — Stock-raising. — Cox-Fowles Company has been incorporated, with capital of $12,000, for conducting stock-raising business, by F. E. Fowles, H. L. Cox and others.

Charleston—Terminal Company.—Charleston Terminal Co. has been organized, with capital of $200,000, and William E. Huger, president; W. H. Hendee, vice-president; R. G. Lankford, treasurer, and Henry Fraser, secretary, to operate the properties of the East Shore Terminal Co. and the Commercial Wharf & Cotton Press Co., recently sold under foreclosure and bought in for Southern Railway and Atlantic Coast Line. Company will issue $1,000,000 of bonds for improvements.

Charleston — Sugar Refinery.— Dispatches from Charleston state that the Carolina & Western Sugar Refining Co. has decided to build refinery near Charleston with capacity of 500 tons per day. It is said that Alfred Roman of New Orleans, La., is interested, but the Manufacturers' Record has not been able to locate anyone of that name in New Orleans.

Cheraw—Planing Mill.—Wm. Godfrey & Co. will establish planing mill.

Columbia—Tannery.—W. W. Draper of Draper, Moore & Co., Atlanta, Ga., is investigating with view to forming $25,000 company to establish tannery at Columbia.

Columbia—Medicine Factory.—Murry Drug Co. has purchased entire plant of the Tannopilene Company, and will operate same.

Conway — Hardware Company. — Horry Hardware Co. has been incorporated, with capital of $8000, by Arthur R. Craig, H. M. Wilcox and others of Chester, S. C.

Eureka—Pad Company.—Eureka Pad Co. has been incorporated, with capital of $10,000, for manufacturing tailors' pads, by T. H. Cannon, J. T. Floyd and R. T. Shockley.

Fort Motte—Cotton-gin Works.—J. A. Peterkin is perfecting a new type of cotton gin, and will arrange for manufacturing the machine.

Greenville—Foundry.—J. N. Emmitt has established foundry in connection with his roller-covering shop.

Kemper—Tobacco Warehouse Company.—Kemper Tobacco Warehouse Co. has been incorporated, with capital of $2000, by C. P. Hayes, G. W. Ellington and T. C. McNelly.

Kirksey — Water-power Development. —S. P. Mathews proposes to develop a water-power on his property, using electrical transmission.*

Newberry—Ice Factory.—M. M. Herlong of Gainesville, Fla., will erect ice factory at Newberry.

Port Royal—Cannery.—Messrs. Lessler & Van Ostrand, who have recently established cannery with capacity of 3000 cans per day, will increase capacity.

Port Royal—Ginnery.—J. K. Attaway & Co. and C. Burckmeyer & Co. are erecting ginnery to be operated as the Port Royal Ginnery.

Spartanburg—Cotton Gin.—Norra Cotton Gin Co. has been incorporated, with capital of $2000, by R. L. Tapp, W. P. Dickson, W. T. Howell.

Summerville — Publishing. — Independent Publishing Co. has been incorporated for conducting general printing and publishing business.

Union — Mineral-water Development. — Frank Peake has mineral spring on his property which he will develop.

Yorkville — Cotton Mill. — Tavora Cotton Mills will add 1000 spindles, contract for which has been awarded.

TENNESSEE.

Chattanooga—Ice Factory.—M. H. Howard will erect 15-ton ice plant.

Chattanooga — Coal Plant. — Wilfred D. Caldwell of Indianapolis, Ind., will, it is said, make arrangements for establishing at Chattanooga a $25,000 plant by the Chemical Hard & Soft Coal Manufacturing Co., incorporated with capital stock of $500,000 for the manufacture of a coal compound invented by Anthony V. Hassman of Indianapolis. Company will establish several of these plants, the first two to be erected at Chattanooga and at Elkhart, Ind. Principal office is at Indianapolis.

Cleveland—Coffin and Casket Factory.—Cleveland Coffin & Casket Co. has increased capital from $12,000 to $20,000.

Dyersburg—Cotton Compress.—Dyersburg Compress Co. has been incorporated, with capital of $10,000, by R. M. Hall, H. B. Watkins, J. M. Brackin, H. A. Sugg and others.

Greene County—Iron-ore Mines.—J. C. Ottinger, cashier Tennessee Trust Co., Memphis, Tenn., will organize company for development of iron-ore property in Greene county.

Jackson—Cotton Company.—Watson Cotton Co. has been incorporated, with capital of $15,000, by C. M. Watson, F. H. Watson, P. J. Dennison, W. J. Johnson and W. H. Eason, Jr.

Jackson—Cotton Company.—Watson Cotton Co. has been incorporated, with capital

of $15,000, by P. J. Dunnison, F. H. Watson, N. J. Johnson and others.

Knoxville — Gas Works.—Knoxville Gaslight Co. will make some improvements, including erection of new retort house, as recently reported, and has awarded no contracts. Address A. W. Young, superintendent.

Knoxville — Barytes Mines.— Commercial Mining & Milling Co., H. H. Farrier, Jersey City, president; Henry Adams, New York, treasurer; Henry C. Adams, Jr., secretary, and Chas. J. Weller, Knoxville, general manager, is preparing for extensive developments of its barytes deposits in Cocke and Monroe counties. Plant 50x150 feet in dimension will be erected, and when completed will have capacity of twenty-five tons of finished product per day; cost about $40,000. Company's New York office is 39-41 Cortland street, and Knoxville office 304-306 Empire Building.

Knoxville — Lumber Company.—Knoxville Lumber Co. has been incorporated, with capital of $5000, by J. D. Mater, C. D. Mater, C. W. Flesher and others.

Knoxville—Coal Mines.—C. E. Palmer of Newark, N. J., owner of coal mines in Pennsylvania and at Ceredo, W. Va., is investigating with view to purchasing coal properties in vicinity of Knoxville.

Memphis — Hat Factory. — Wagner-Sisk-Shipp Hat Co. has secured building 225 Second street, which it will equip as factory for manufacture of hats and caps. C. Wagner, R. L. Shipp and J. L. Sisk compose the company.

Memphis—Pants and Overall Factory.—Sol Folz of New York, Ralph Levy, Sam Behr and Sol. Schatz are organizing the S. Folz & Levy Clothing Co., with capital of $75,000, to establish factory in Memphis for manufacture of pants, overalls and jumpers. Building 231 Main street has been secured and will be equipped with 100 sewing machines operated by electricity and an electric cutting machine.

Nashville—Knitting Mill.—Nashville Hosiery Mills will erect another building, install additional knitting machines, remodel dyehouse and add dyeing equipment.

Nashville — Skirt Factory. — Rich & Schwartz, manufacturers of ladies' suits, will install additional machinery for increasing capacity of and enlarging factory.

Nashville — Tobacco Company. — Cumberland Tobacco Co. has been incorporated, with capital of $20,000, by W. P. Puryear, Jr., J. P. Regan, L. E. Rice and others.

Nashville—Sewer Construction.—Nashville Plumbing Co. has been awarded contract for constructing sewer in alley between Market and College streets.

Nashville — Overall Factory. — O'Bryan Bros., overall manufacturers, will establish branch factory in West Nashville.

Nashville—Automobile Factory.— Tyndale Palmer, vice-president of the Union Terminal Co., 27 Pine street, New York city, is investigating Nashville as site for establishment of plant to manufacture all kinds of motor vehicles.

TEXAS.

Austin—Stove Company.—Spiller Crude Oil Stove Co. has been incorporated, with capital of $150,000, for manufacturing Spiller's oil burners and stoves, by P. S. Spiller, H. P. Haldeman, John K. Donnan and C. L. Test.

Austin—Mining.—International Mining Co. has been incorporated, with capital of $200,000, by Ed. R. Smith, R. C. Lambie and Francis Fisher.

Corsicana—Oil Company.—Richardson-Gay Oil Co. has increased capital from $30,000 to $50,000.

Beaumont—Oil Wells.—Oriole Oil Co. has been incorporated, with capital of $25,000, to prospect for oil and minerals, by George Woodward, E. L. Bradley, F. M. Gilbough and others.

Beaumont—Pulp Mill.—G. R. Noble of Hoboken, N. J., is investigating Beaumont as site for pulp mill.

Beaumont — Electric-power Plant.— Beaumont, Sour Lake & Port Arthur Traction Co., which is about to be incorporated, will build a large power-house to supply fifty-two miles of railway and furnish power and lights to ice plants, pumping stations and towns. D. W. Meeker and B. R. Norvill are among the directors.

Big Springs—Telephone System.—Western Telephone Co., reported recently as incorporated with capital of $15,000, has been granted franchise for construction of system of telephones, and will contract for 150 to 200 miles of toll lines. C. L. Alderman is general manager; R. J. Compton has charge of construction.*

Cleburne—Cotton Compress.—M. M. Pittman and S. B. Allen are organizing company for establishment of cotton compress.

Denison—Mercantile.—Chartered: Nilson-Crawford Company, with capital of $10,000, by A. A. Nilson and others.

El Paso—Trading.—Old Mexico Trading Co. has been incorporated, with capital of $30,000, by C. W. Allen, Simon Bitteman and others.

El Paso—Mercantile.—J. M. Cannon Mercantile Co. has been incorporated, with capital of $25,000, by J. M. Cannon and others.

Fort Worth—Laundry.—Acme Steam Laundry has been incorporated, with capital of $50,000, by John C. Harrison, A. M. McElwee and John W. Wray.

Fort Worth — Chemical Works. — Fort Worth Chemical Co. has been established by Frank Field and M. R. Kiley, with capital of $10,000, for the manufacture of vinegar, soap, spices, blueing, mustard, etc. Address 1818 Jones street.

Ganado—Canal.—Ganado Canal Co. has been incorporated, with capital of $15,000, for constructing irrigation system, by A. S. Durgans, N. Strauss, Legar Drury and others.

Groveton—Saw-mill.—Trinity County Lumber Co. will erect new saw-mill in addition to those at present in operation.

Houston—Mercantile.—Chartered: William L. Foley, with capital of $100,000, by W. L. Foley and others.

Houston—Rice and Irrigation Company.—Kentucky Rice & Irrigation Co. has been incorporated, with capital of $30,000, for conducting general rice and irrigation business, by J. A. Radford, Chas. D. Golding and Chas. L. Burns.

Houston—Brick Works.—H. E. Fuller & Co. propose organizing company for erection of brick works to cost $50,000. Local capital will subscribe $25,000, the remainder to be secured from outside capital.

La Grange—Cannery.—J. F. Wolters and associates contemplate establishing cannery.*

Lake View—Packery.—J. W. Miller is erecting packing plant.

Lone Oak—Cotton Gin.—Farmers' Gin Co. has been incorporated, with capital of $20,000, by J. D. Edge, C. G. Barnes and A. J. Elliott.

Marshall—Oil Company.—Marshall Oil Co. has been incorporated, with capital of $25,000, by A. J. Haile, R. W. Stevenson of Jefferson, Texas; S. R. Perryman of Houston.

McKinney—Telephone Company.— McKinney Telephone Co. has increased capital from $10,000 to $20,000.

Nacogdoches — Lumber Mills. — Haywood Lumber Co., owning about 40,000 acres of timber lands in Nacogdoches and San Augustine counties, contemplates erection of extensive lumber-manufacturing plant at Nacogdoches.

Nacogdoches—Woodworking Factory.—Bonita Manufacturing Co., manufacturer of mantels, bookcases, desks, cabinet work, sash, doors, blinds, etc., will be incorporated, with capital of $20,000, for purpose of enlarging and increasing capacity of its plant.

Nacogdoches—Lumber Mill.—Turner & Nabers of Beaumont, Texas, have purchased and will operate lumber mill of Jeanes Bros.

Orange—Artesian Well.—Orange Ice, Light & Water-Works Co. has contracted for machinery for boring artesian well.

Pittsburg — Cotton Company.—Wylie-Higgins Cotton Co. has been incorporated, with capital of $10,000, by R. E. Wylie, W. B. Higgins and others.

Port Lavaca—Oyster Cultivation.—W. H. Burke, G. M. McKinney, R. C. Schultz, F. C. Pickert and associates, all of Chicago, Ill., have organized the Chicago Oyster Co. for cultivation of shell fish on the Texas coast below Port Lavaca. Company has arranged to secure claim of 640 acres.

Sour Lake — Oil Company. — Chartered: Burt-McGaffy Oil Co., with capital of $150,000, by R. F. Burt, Otis McGaffy, H. E. MacArthur and others.

Stamford—Mercantile.— Chartered: Stamford Dry Goods Co., with capital of $20,000, by W. C. Blanchett and others.

Stith—Cotton Gin.—Stith Gin Co. has been incorporated, with capital of $5000, by W. A. Donaldson, G. W. Butler and T. N. Kelsoe.

Sugarland—Paper Mill.—Ed. H. Cunningham & Co. will enlarge and improve paper mill, increasing capacity from 12,000 to 100,000 pounds per day.

VIRGINIA.

Bristol—Building Materials.—The Adams Brothers Company has been incorporated, with capital of $50,000, for dealing in building materials and supplies of all kinds. J. C. Adams is president; J. H. Adams, vice-president, and T. C. Adams, secretary-treasurer, all of Lynchburg, Va.

Clifton Forge—Telephone-line Contact Apparatus.—Joseph P. Werner has invented and secured patent on a telephone-line contact apparatus, but has made no arrangements towards having same manufactured as yet.

Fredericksburg — Ice Factories.— Consolidated Ice Co., organized with B. J. Marshall, president; M. B. Rowe, vice-president, and J. B. Colbert, manager, has taken over properties of Cool Spring Ice Co. and Fredericksburg Ice Co., and will operate same under one management, consolidating the two plants.

Kimballton—Land and Lumber Company. Ohio Land & Lumber Co. has been incorporated, with capital of from $10,000 to $25,000, for manufacture of lumber, etc.

Lynchburg — Mercantile. — Chartered: Thomas & Pankey Company, with capital of from $2000 to $10,000, by A. O. Thomas (president) and others.

Martinsville—Tobacco Company.—Spencer Bros., manufacturers of tobacco, will erect three-story storage leafhouse 60x150 feet.

Newport News—Steel-casting Plant.—Newport News Shipbuilding & Dry-Dock Co. will equip the extension to its foundry now being built with latest machinery and appliances for the manufacture of steel castings. Addition is about 150x60 feet.

Norfolk—Real Estate.—Chartered: Hugh L. Anmonn Company, with capital of $50,000, by Hugh L. Anmonn, John Van de Ceer, William Satter and others.

Norfolk — Sewerage. — City contemplates constructing sewerage system for public schools at cost of about $5000. Address "The Mayor."

Norfolk—Publishing.— Tidewater Publishing Co., with capital of $10,000, has been incorporated. Charles G. Kizer is president; Chas. A. Mears, vice-president, and M. J. Lyons, secretary.

Norfolk — Land Improvement. — Diamond Springs Land & Improvement Co. has amended charter, changing name to the Lynnhaven Beach & Park Co. H. B. Goodrich is president, and L. R. Britt, secretary.

Norton—Brick Works.—Norton Silica Brick Co. has been incorporated for manufacture of brick from sand and lime by chemical process; capital $15,000.

Pearisburg—Lumber Mills.—Ohio Land & Lumber Co. has purchased 1500 acres of timber lands and contemplates erecting two saw-mills for developing the property.

Portsmouth — Mattress Factory. — Frank Lindsay will occupy new building to be erected by L. R. Watts as mattress factory.

Richmond—Standpipe.—Contract for construction of standpipe on the Reservoir speedway has been awarded Wirt A. Chesterman at $13,304.

Richmond—Hat Factory.—Southern Hat Works, manufacturer of straw hats, Petersburg, Va., states that it has been decided not to remove plant to Richmond, as lately reported.

Richmond—Brick and Tile Works.—American Hygienic Brick Tile Fireproofing Co. has been incorporated, with capital stock of $1,000,000, for manufacture of Anderson's brick tile fireproofing and all clay products, and will establish plant at cost of $500,000 in Richmond. D. Wiley Anderson of Richmond is president, and W. L. Yeager of Washington, D. C., secretary-treasurer; directors include J. F. Chalmers of Richmond, John Miller and Samuel Ross of Washington, D. C., and others.

Roanoke—Coal Company.—Chartered: Clear Air Anthracite Coal Co.

Roanoke—Lumber Company.—Taylor-Bush Company has been incorporated, with capital of from $10,000 to $50,000, for conducting general lumber manufacturing business, by D. M. Taylor, L. B. Taylor, C. L. Bush, H. M. Bush and G. W. Payne.

WEST VIRGINIA.

Belington—Planing Mill and Woodworking Factory.—C. C. Vanderhoff of Clarksburg, W. Va.; Geo. M. Serpell of Belington and others are organizing $25,000 company for erection of planing mill and woodworking factory.

Bramwell—Powder Mill.—E. I. du Pont de Nemours & Co., Wilmington, Del., in letter to Manufacturers' Record states that it has purchased land near Bramwell, and is arranging to build powder mill of 1000 to 1500 kegs daily capacity.

Cabin Creek (not a postoffice)—Coal Mines. Peerless Coal Co. has been incorporated, with capital of $25,000, by George Henderson, Howard W. Silby, Wm. Henderson, Fred Beall and others, all of Washington, D. C.

Charleston — Coal Mines. — Middle Creek Coal & Land Co. has been incorporated, with capital of $200,000, for development of coal mines, etc., by Samuel Stephenson, W. E. R. Byrne, Harry S. Cato and others.

East Bank—Coal Mines, etc.—Shenandoah Coal & Coke Co. has been incorporated, with capital of $24,000, for manufacture of coke, development of coal mines, etc., by J. A. Hull of Pittsburg, Pa.; A. S. Boyd, Chas. Strouse, R. A. Davenport and T. J. Davis of Shenandoah, Pa.

Elm Grove—Sewerage.—City will construct about 1625 feet 10-15-inch sewers; J. E. Raab, recorder.

Fairmont—Check-book Factory.—The Safety Check-Book Co. has been incorporated, with capital of $75,000, for the manufacture of a safety check-book. John Clark, A. B. McDonald, A. S. Holdert, all of Fairmont, are the incorporators.

Huntington-Candy Factory.-Eskew-Burchett Company has been incorporated, with capital of $25,000, for manufacture of candy, etc., by J. G. Eskew of Charleston, W. Va.; George F. Miller, L. V. Waugh of Huntington and others.

Huntington — Land Improvement.—Huntington Land Co., previously reported incorporated with capital stock of $350,000, has purchased properties which will be improved as manufacturing and residence sites. B. W. Foster is president; C. L. Ritter, vice-president; G. A. Northcott, treasurer, and B. L. Priddle, secretary.

Huntington — Steel Mill. — Baumgarten Bros. of Pittsburg, Pa., have purchased plant of Huntington Tin & Planished Plate Co. at Huntington, and will enlarge same by the erection of a 200-foot addition, converting it into a steel mill for the manufacture of T rails.

Huntington—Coal Mines.—Guyan Valley Fuel Co. has been incorporated, with capital of $100,000, to develop coal mines, by John W. Ensign, James C. Bube, James K. Oney, J. H. Murray and J. B. Enslow.

Kanawha Falls—Coal Mines, Coke Ovens, etc.—Cataract Colliery Co., reported recently as incorporated with capital of $10,000, has elected J. M. Clark, president, and C. E. Krebs, secretary-treasurer. Company will make arrangements for development of coal mines and manufacture of coke, etc., at Kanawha Falls. Address the secretary.*

Martinsburg — Storage Company. — Miller Storage Co. has been incorporated, with G.

THE PROPOSAL COLUMNS of the Manufacturers' Record are invaluable in securing competitive bids from first-class firms for bond purchases and all kinds of construction work, as railroad (steam and electric), electric light plants, public franchises, waterworks, sewerage, municipal improvements and all public utilities; and whenever the regular issue of the Manufacturers' Record is too late for quick bids, the Daily Bulletin of the Manufacturers' Record, which reaches financial people, engineers, architects, contractors, etc., throughout the country—North, South, East and West—can be used to great advantage, as it is published every business day in the year.

W. McKown, president, to build storage plants at Winchester, Va.; Martinsburg, W. Va.; Hagerstown, Md., and other points.

Morgantown—Glass Factory.—Economy Tumbler Co. has been incorporated, with capital of $100,000, by George W. Fry, Frank P. Corbin, L. D. H. Peddicord, Geo. C. Sturgiss and E. T. Schultz.

Mt. Hope—Brick Works.—Paintsville Development Co. has been incorporated, with capital of $10,000, for manufacture of brick and to deal in and improve real estate, by P. M. Snyder, W. H. Rardin, J. E. Combs and T. H. Snyder.

Parkersburg—Mercantile.—Chartered: Eureka Wholesale Grocery Co., with capital of $25,000, by W. A. Fleming and others.

Point Pleasant—Mining and Manufacturing.—Point Pleasant Development Co. has been incorporated, with capital of $50,000, for conducting mining and manufacturing business, by E. J. Mossman, Rankin Wiley, S. W. Swisher and others.

Sistersville—Novelty Company.—Chartered: Sistersville Novelty Co. has been incorporated, with capital of $10,000, for manufacture of hammocks, chairs, swings, etc., by T. K. Smith, G. B. West, C. E. Bailey and others.

Williamson—Coal Mines.—Chattaroy Colliery Co. has been incorporated, with capital of $50,000, for developing coal mines, by J. B. Byrd, A. M. Tabor, Bramwell, W. Va.; E. Leftwich and R. N. Taylor, Williamson.

Thurmond—Mercantile.—Chartered: Clark-Lawrence Company, with capital of $25,000, by J. G. Clark and others.

Wayne—Furniture Company.—Wayne Furniture Co. has been incorporated, with capital of $5000, by John G. Lambert, W. P. Wilson, W. T. Booton and others.

Wheeling—Bridge.—Wheeling & Elm Grove Railway will make some improvements, which include construction of new bridge across Woods' run.

Wheeling—Mercantile.—Chartered: Counihan Bros. Co., with capital of $50,000, by James H. Patrick and others.

INDIAN TERRITORY.

Muskogee—Oil and Gas Wells.—Flint Oil & Gas Co., reported last week as incorporated with capital stock of $500,000, has leased 1120 acres of land, which it will develop at once for oil and gas; Thomas P. Smith, president.

South McAlester—Steel Plant.—G. H. Williams of Kansas City, Mo., has made proposition to establish $130,000 plant in South McAlester for manufacture of steel products, making a specialty of a patent joint for railway rails.

OKLAHOMA TERRITORY.

Blackwell—Artesian Well.—City has contracted with Blackwell Gas & Mining Co. for sinking artesian well.

El Reno—Mercantile.—Chartered: Towler Grocer Co., with capital of $10,000, by M. C. Towler, J. A. La Bryer and L. Rardin.

Enid—Electric Plant, Ice Factory, etc.—Interstate Construction Co. has been incorporated, with capital of $100,000, by D. M. Carey, C. C. Roberts of Drummond, W. S. Whittinghill of Enid and others, for erection and operation of flour mill, electric-light plant and ice factory.

Lawton—Mining.—Independence Mining Co. has been incorporated, with capital of $1,000,000, by J. W. and S. J. Martin, L. J. Kalklosch and J. C. Hollis.

Oklahoma City—Townsite.—Arkansas Valley Townsite Co. has been incorporated, with capital of $54,000, by C. G. Jones of Oklahoma City, John B. Linden, H. H. Watkins of Enid and others.

Oreana—Mining.—Aurum Mining Co. has been incorporated, with capital stock of $3,000,000, by D. F. Hollis of Oreana, S. P. Ries and F. C. Davis of Mt. Sheridan.

Pawnee—Oil Company.—Premier Oil Co. has been incorporated, with capital of $240,000, by A. J. Biddison of Pawnee; L. S. Skelton and Luther Perkins of Coffeyville, Kan.

Watonga—Cement Company.—Canton Cement Plaster Co. has been incorporated, with capital of $100,000, by P. S. Nagle of Kingfisher, Frank Kronhite and E. L. Hotchkiss of Watonga.

BURNED.

Charlotte, N. C.—Batting mill owned and operted by Virginia-Carolina Chemical Co. (Richmond, Va.) in connection with its oil mill near Charlotte; estimated loss $15,000.

Henderson, Ky.—Kentucky Milling Co.'s plant; estimated loss $40,000.

Jackson, Tenn.—Mercer & McGlathny's warehouse.

Manchester, Va.—James River Furniture & Mattress Co.'s plant.

Sylacauga, Ala.—T. M. McDowell's saw and shingle mill; loss $2000.

Thomasville, Ga.—Thomasville Variety Works and Planing Mill; estimated loss $10,000.

Wellsburg, W. Va.—Wellsburg Heating & Foundry Co.'s plant; estimated loss $22,000.

BUILDING NOTES.

*Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery, Proposals and Supplies Wanted."

Albany, Ga.—School.—City has awarded contract for erection of brick annex to Albany Academy. Address "The Mayor."

Annapolis, Md.—Courthouse Annex.—Contract to build an addition to the clerk's office in the courthouse has been awarded the B. F. Smith Fireproof Construction Co.

Annapolis, Md.—Stable.—H. C. Taylor, chief of bureau of navigation, Navy Department, Washington, D. C., will receive bids until August 11 for erection of $20,000 stable at United States Naval Academy. Blank forms of proposals and specifications will be furnished and plans may be seen on application at bureau of navigation, United States Naval Academy or office of E. Burnett, architect, 111 Fifth avenue, New York.

Annapolis, Md.—Chapel and Officers' Quarters.—Noel Construction Co. of Baltimore, Md., has contract at $379,700 for erection of the chapel, and also contract at $309,730 for erection of officers' quarters at Naval Academy.

Athens, Ga.—Church.—Methodist Episcopal congregation will erect new church. Address "The Pastor."

Austin, Texas—Hospital.—Board of managers of the Confederate Home has awarded contract to Jacob Wattinger for erection of proposed $15,000 hospital.

Austin, Texas—School Building.—Wattinger & Ledbetter have contract at $42,000 for erecting the two-story and basement brick school building at State Blind Asylum, recently reported.

Baltimore, Md.—Store Building.—Contract will shortly be awarded for erection of four-story brick addition to Jordan Stabler Company's grocery store. E. H. Glidden prepared plans.

Baltimore, Md.—Church.—Bids are being received for erection of stone church for Methodist Episcopal congregation at Stevenson; cost $5000; Rev. W. W. Costin, pastor.

Baltimore, Md.—Warehouse.—Farley & Monmonier have contract for erecting proposed warehouse of Poole & Co.

Baltimore, Md.—Cottage.—McIver & Piel have contract for building $10,000 cottage at Lauraville.

Baltimore, Md.—Dwellings.—United Real Estate Co. will erect six two-story brick dwellings at a cost of $1650 each.

Baltimore, Md.—Laboratory.—Contract will soon be awarded for erection of proposed laboratory for Maryland University; building will be of brick and stone, and contain all modern improvements, including electric lights, gas and water supplies, tiling, etc. George C. Haskell prepared the plans, as previously reported.

Baltimore, Md.—Residence.—Morrow Bros. have contract for erecting $30,000 addition to residence of Isaac E. Emerson, previously reported.

Beaumont, Texas—City Hall.—Contract has been awarded William Weber for erection of proposed City Hall.

Biloxi, Miss.—Church.—Plans have been adopted for erection of the proposed $10,000 edifice for Methodist church. Address "The Pastor."

Birmingham, Ala.—Dwelling.—A. R. Dearborn will erect $12,000 dwelling, as lately reported. Walter & Chaffee are the architects, and C. W. Brown, builder.

Birmingham, Ala.—Dwelling.—B. A. Lewis will erect two-story frame dwelling at cost of $5000.

Birmingham, Ala.—Store Building.—Ben. F. Barbour is erecting three-story building to cost $10,000, as lately reported. J. B. Carr & Co. are the architects.

Birmingham, Ala.—Church.—Contract has been awarded Fred Maesser for erection of $25,000 edifice of First Christian Church, for which J. B. Carr & Co. were recently reported as having prepared the plans.

Birmingham, Ala.—Parsonage.—First Methodist Church will erect $10,000 parsonage. Address T. T. Hillman, J. D. Moore or B. B. Comer.

Charleston, S. C.—Art Gallery.—Trustees of James S. Gibbes' art gallery, Charles H. Simonton and J. Adger Smyth, invite sealed proposals until August 29 for erection and completion of art gallery (reported last week) according to plans and specifications on file with J. B. Dingle, city engineer, and at office of Architect Frank P. Milburn, Columbia, S. C. Certified check for $2000 must accompany each bid; $25,000 bond required and usual rights reserved.

Charlottesville, Va.—Depot.—Chesapeake & Ohio Railway Co. has awarded contract for erection of its proposed depot at Charlottesville; C. E. Doyle, general manager, Richmond, Va.

Chattanooga, Tenn.—Library.—R. H. Hunt and Adams & Bearden will prepare plans for proposed Carnegie Library at Chattanooga.

Chickasha, I. T.—Church.—M. E. Church, South, G. H. Ray, pastor, will erect $25,000 edifice, as recently reported. Plans have not been prepared and no contracts awarded.

Cleburne, Texas—Depot.—Chas. Page of Austin, Texas, has completed plans for proposed depot at Cleburne to be built by Trinity & Brazos Valley Railway.

Cleburne, Texas—Church.—Second Christian congregation will erect new church. Address "The Pastor."

Clarksdale, Miss.—Depot.—Yazoo & Mississippi Valley Railroad Co. will erect new depot at Clarksdale. Address C. N. Bell, division superintendent, Vicksburg, Miss.

Clintwood, Va.—Jail.—Dickenson county will build jail of brick, and to have steel cells, office for sheriff and living rooms for jailer; cost $10,000. Roland E. Chase, president Clintwood Bank, has been appointed to secure plans to be presented to board of supervisors August 24.

Columbia, S. C.—College Improvements.—Plans of C. C. Wilson have been accepted for proposed improvements to the Methodist female college building, which will be made at cost of $50,000.

Columbus, Ga.—Store Building.—James A. Lewis will erect new store building.

Cordele, Ga.—Library.—J. M. Baggett & Co., Douglasville, Ga., have contract at $9500 for erection of Carnegie library at Cordele. J. W. Golucke & Co. of Atlanta, Ga., prepared the plans.

El Paso, Texas—Depot.—Plans and specifications have been adopted for the proposed $240,000 union depot at El Paso. Contract for grading and excavation has been awarded Capels, Powers & O'Connor.

Forsyth, Ga.—Dormitory.—Monroe College has awarded contract for erection of 100-room dormitory, as recently reported, to W. J. Breeland, Forsyth, Ga., or Macon, Ga. A. W. Blair of Macon prepared the plans.

Fort McPherson, Ga.—Buildings.—Contracts for erection of barracks and officers' quarters at Fort McPherson have been awarded Atlanta (Ga.) parties as follows: Nicholas Ittner at $145,000 for two double quarters, one bachelor officers' quarters and one field officers' quarters; Farrell Heating & Plumbing Co. at $25,000 for plumbing, heating and gaspiping; John Hecker at $19,000 for one double set officers' quarters.

Greenville, S. C.—Warehouse.—Piedmont Warehouse Co., reported lately as incorporated with capital of $25,000, has awarded contract to Ebaugh & Ebaugh for erection of its proposed warehouse, which will be two stories, of brick, 600x120 feet, with capacity for storing 12,000 bales of cotton.

Greenville, Miss.—Lodge Building.—P. H. Weathers of Jackson, Miss., is preparing plans for Elks' Home at Greenville, as lately reported. Building will be two stories, of brick, 50x100 feet, with slate roof, tile floors, steam heat, electric lights, etc.; cost $17,000. Contract for erection will be awarded in about forty-five days.

Houston, Texas—Building.—Adam Clay will erect three-story brick building 50x100 at cost of $10,000.

Houston, Texas—Fire Hall.—Plans and specifications of Cook & Co. will be accepted for proposed fire hall to be built in Houston. Plans call for $30,000 building 100x80 feet.

Jackson, Miss.—Office Building.—P. H. Weathers is preparing plans for the office building reported lately to be erected by Carl Von Scutler; will be five stories, 30x100 feet, equipped with electric elevators, electric lights, etc.; cost $15,000. Contract will be awarded in ninety days.

Jackson, Miss.—Hotel.—P. H. Weathers is preparing plans and specifications for hotel previously reported to be erected by Jackson Hotel Co.; will be 95x135 feet and cost $70,000. Contract will be awarded in about seventy days.

Johnson City, Tenn.—Building.—Sealed proposals will be received at office of National Home for Disabled Volunteer Soldiers, 346 Broadway, New York, until August 18 for furnishing material, labor, etc., for construction of four officers' quarters and one governor's residence at the Mountain Branch, N. H. D. V. S., near Johnson City. Plans may be seen and copies of instructions and specifications, together with blank proposals and other information, had upon application to Architect J. H. Freelander, 244 Fifth avenue, New York; to superintendent of construction, Mountain Branch, Johnson City, and to Moses Harris, general treasurer, 346 Broadway, New York.

Kansas City, Mo.—Office Building.—John H. Rieksecker will erect office building.

Kansas City, Mo.—Business Building.—Broadway Building Co. will erect seven-story brick building to cost $110,000, and to be occupied when completed by Faxon-Horton-Gallagher Drug Co.

Kansas City, Mo.—Business Building.—J. H. Rieksecker will erect business building, as lately reported; will be three stories, 48x110 feet, and cost $25,000. Breckline & Co. prepared the plans. No contracts for erection have been awarded.

Keyser, W. Va.—School.—City will issue $15,000 of bonds for erection of new school building. Address "The Mayor."

Laurel, Miss.—Office Building.—Rumble & Ottman will erect office building, as lately reported. P. J. Krouse of Meridian, Miss., is the architect, and plans call for two-story brick, stone and terra-cotta building with composition roof, etc.; cost $4000.

Lexington, Ky.—Office Building.—Hendricks Bros. have contract for erecting proposed building for the Security Trust Co.

Louisville, Ky.—Apartment-house.—J. J. Gaffney has made plans for annex to St. Charles Place Apartments.

Marion, S. C.—Bank Building.—Joseph Schad of Birmingham, Ala., has contract for erecting proposed two-story stone and brick building for Farmers and Merchants' Bank at Marion.

Montgomery, Ala.—Stores.—Schloss & Kahn (lately reported) have contracted for erection of three two-story stores at cost of $20,000. Architects are Ausfeldt & Chapman, and contractor C. Y. Bogacki.

Morgantown, W. Va.—Dwelling.—President D. B. Purinton, board of regents West Virginia University, will receive bids until August 25 for erection of house in accordance with plans and specifications prepared by J. C. Gault. After August 1 plans may be seen at offices of J. G. Gault, Morgantown; J. W. Cowden, Wheeling; C. E. Haworth, Huntington; J. B. Finley, Parkersburg; D. C. Gallaher, Charleston, and H. W. Harmer, Clarksburg. Usual rights reserved.

Nashville, Tenn.—Residence.—Robert Elliott will erect brick residence to cost $3500.

Nashville, Tenn.—School.—City will erect new brick school building with slate roof at cost of $20,000. Thompson, Gibel & Asmus are architects in charge of work.

Nashville, Tenn.—Business Building.—Sprulock-Neal Company, druggists, has purchased building and will remodel at cost of $20,000 after plans by Brown & Brown.

Nashville, Tenn.—Church.—East End Methodist Church, Rev. R. H. Hidgens, pastor, will erect $10,000 edifice.

Norfolk, Va.—Apartment-house.—Municipal Realty Co., incorporated with capital of from $15,000 to $50,000, and J. K. Peebles, president; A. W. Cornick, secretary-treasurer, will erect four-story brick apartment-house.

Palestine, Texas—Lodge Building.—Palestine Lodge, B. P. O. E., will erect $15,000 hall, but has made no definite arrangements.

Pensacola, Fla.—School.—C. H. Turner has contract at $7000 for erecting three-story building for the Pensacola Classical School.

Petersburg, Va.—Dwellings.—H. P. Stratton wants to correspond with architects relative to preparing plans for and giving estimates on erection of about 100 single and double tenement houses suitable for laborers.

Rabun Gap, Ga.—School.—Rabun county will erect $5000 high-school building; A. J. Ritchie, chairman and financial agent. Plans are desired.

Richmond, Va.—Sanitarium.—Dr. J. Allison Hodges has purchased residence, which he will remodel and improve as a sanitarium.

Roland Park, Md.—Club.—Gustave L. Stroh has contract at $10,000 for erecting Woman's Club building previously reported.

Savannah, Ga.—Hotel.—B. Dub, proprietor of the Screven House, is having plans made for six-story pressed-brick and steel hotel to cost $300,000.

South McAlester, I. T.—Office Building.—H. H. Kirkpatrick, proprietor of the Kalinia Building, is having plans made for converting the structure into office building.

St. Louis, Mo.—Fair Building.—Caldwell & Drake of St. Louis have contract at $57,000 for erection of the New York State building at St. Louis Exposition, for which Clarence Luce of New York prepared plans.

St. Louis, Mo.—Fair Building.—Deitrich & Bowser of Philadelphia, Pa., have contract at $70,000 for erecting Pennsylvania building at St. Louis fair.

Spartanburg, S. C.—Hall.—Plans for proposed alumni hall have been accepted by Converse College; will be two stories, of brick, and cost between $10,000 and $15,000.

Staunton, Va.—Office Building.—Edward Echols has awarded contract to E. W. Stewart & Co. for erection of office building.

Thibodaux, La.—Courthouse.—H. N. Coulon, clerk police jury, will receive bids until August 27 for repairing and remodeling courthouse. Three bids will be required, and certified check for $1000 must accompany each separate bid. Bond required and usual rights reserved.

Thorndale, Texas—Church.—Moore, Brown & Davidson of Taylor, Texas, have been awarded contract to build church for Baptist congregation at Thorndale.

Vicksburg, Miss.—Business Building.—F. J. McGraw has contract at $22,860 for erecting the Sol Fried mercantile building.

Waco, Texas—Schools.—School board is advertising for bids for erection of three school buildings.

Waco, Texas—Hospital.—Contract for erection of the Provident Hospital, to be under management of Sisters of Charity of St. Vincent de Paul, and previously reported in these columns, has been awarded to J. Wattinger of Dallas, Texas; cost $110,000.

Washington, D. C.—Dwellings.—John Miller will erect a number of two-story dwellings.

Washington, D. C.—Apartment-houses.—Mrs. Frances V. Cameron has purchased site at $30,000 and will erect two apartment houses.

Waskom, Texas—City Hall.—Company has been organized with C. M. Abney, president; W. M. Bell, vice-president, and D. H. Morris, secretary, for erection of City Hall.

Wheeling, W. Va.—Residence.—Fred Faris will prepare plans for residence reported lately to be erected by John A. Howard.

RAILROAD CONSTRUCTION.

Railways.

Anniston, Ala.—Concerning the report that the Commercial Club is considering a plan to build a railroad from Anniston to Columbus, Ga., via Wedowee, Roanoke and Lanette, Mr. W. T. Owen, secretary, writes the Manufacturers' Record stating that it is true and the distance is about 140 miles. No engineer is yet employed.

Ansted, W. Va.—W. N. Page, president, is reported as saying that no track is yet laid on the Deepwater Railway, but that eighty miles, from Deepwater to the Bluestone river, are under contract.

Apex, N. C.—The extension of the Cape Fear & Northern Railway will, it is reported, be completed to Dunn by September 1. J. C. Angier is general manager.

Athens, Ga.—Surveyors have finished their survey of the proposed electric railroad to extend from Athens to Carnesville. The new road will run through either Ila or Danielsville on the way to Carnesville, and will be thirty-two miles in length. It is believed that all the necessary steps for its construction will be taken at an early date. The Everett-Moore Syndicate of Toledo, Ohio, is said to be promoting this railway.

Beaumont, Texas.—The Beaumont, Sour Lake & Port Arthur Traction Co. will be incorporated, with a nominal capital of $300,000, to build the proposed electrical railway from Beaumont to Sour Lake, Saratoga and Port Arthur. This line will be fifty-two miles long, constructed of steel rails on a modern roadbed, and it is stated that contracts for rail and other materials has already been awarded to the Carnegie Steel Co. of Pittsburg, Pa. It is stated that the power-house will, besides supplying the railway, furnish power to ice plants and pumping stations along the route and lights for the several towns connected. D. W. Meeker, B. R. Norvell, William Weiss, G. W. O'Brien and R. C. Duff of Beaumont, George A. Hill of Sour Lake, George M. Craig of Port Arthur, John H. Linn of Springfield, Ohio; William Abbott Smith, Hugh E. Smith and Theodore Weyant of Columbus, Ohio, will be the directors.

Belva, W. Va.—Nicholas Short Line Railway Co. has been incorporated by C. C. Sharp of Gauley Bridge, W. Va.; Peter Cariol, W. E. Chilton, J. E. Chilton and T. S. Clark of Charleston, W. Va., with capital of $100,000, to construct a railroad from Belva to the mouth of Little Elk, a tributary of Gauley river.

Birmingham, Ala.—R. Klingberg, resident engineer at Memphis, Tenn., of the St. Louis & San Francisco Railroad, has completed drawings for the belt line to be constructed at Birmingham, and the company's chief engineer will inspect these drawings at once. If the drawings are passed contracts for the construction work will be let and bids will probably be advertised for during August. Six miles of new main track, besides several miles of switches, will be required.

Broxton, Ga.—The Southern Pines Railroad has been completed to Broxton.

Burnside, Ky.—Burnside & Cincinnati Railway Co., capital $5000, has been incorporated to build a road to join the Cincinnati Southern from the junction at Burnside to the mouth of South Fork river, where it joins the Cumberland. C. W. Cole, R. K. Cole, M. F. Mallory, L. N. Gath and Parke S. Johnson of Cincinnati, Ohio, are the incorporators.

Canadian, I. T.—Concerning the projected McKinney, Decatur & Western Railway, M. J. Healy, vice-president and general superintendent, writes the Manufacturers' Record that it is proposed to build from McKinney, Texas, to Decatur and Bridgeport, Texas, seventy miles; also from McKinney east to Mansfield, La., 180 miles, and finally as far west as Roswell, N. M., 400 miles from Bridgeport; construction to begin in thirty or forty days. Survey to be made by J. A. Merrywether, engineer.

Chattanooga, Tenn.—Cumberland Coal & Coke Co. is making steady progress with the construction of its railway from Lansing, on the Cincinnati Southern, to South Pittsburg. The roadbed will soon be ready for the laying of track.

Christiansburg, Va.—Construction has begun on the electric railway to extend from Christiansburg to the properties of the United States Arsenic Co. in Floyd county. This line will be extended via Auburn, a three-mile branch of the Norfolk & Western to be utilized, and it is understood that the Norfolk & Western Railroad has subscribed $8000 to the company's capital. Contract for construction and equipment has been awarded to the Westinghouse Company, Pittsburg, Pa., at about $75,000.

Cincinnati, Ohio.—G. B. Nicholson, chief engineer Queen & Crescent Route, writes the Manufacturers' Record that there is no truth in the report, referred to last week, that his company will double-track its railway between Cincinnati and Chattanooga, Tenn. The company is, however, grading for one-quarter mile second track at Oakdale, Tenn., to complete a three-mile second track already built.

Cleburne, Texas.—W. D. Myers, president Denison, Cleburne & Southwestern Railway, is reported to have stated that his company will soon begin constructing its southwestern extension, and that the line will also be extended to Glenrose.

Dartmoor, W. Va.—Drayton & Co. have received contract to construct a one-and-one-quarter-mile extension for the Belington & Beaver Creek Railroad.

England, Ark.—Grading is reported complete on the England & Clear Lake road from England to Lassiter's Landing, nine miles.

Fort Smith, Ark.—Ebey & Stocker and Maney Bros. are said to have the contract for building the Midland Valley Railroad from Fort Smith to Hartford, Ark., fifty-three miles.

Henderson, Ky.—E. G. Sebree has purchased franchise providing for the entrance of an interurban railway into this city.

Hobart, O. T.—Seely Dunn, one of the incorporators of the line, is quoted as denying the report that the Colorado, Oklahoma & Texas Railway, recently chartered, is backed by the Orient, and further says that it is wholly independent.

Houston, Texas.—New York capitalists are reported as preparing to construct a railway from Houston to Brownsville, connecting with the Santa Fe between Alvin and Galveston; thence on an air line to Columbia, where a bridge will be built across the Brazos river. The railway will then run through Brazoria, Matagorda and Calhoun counties to a point across the bay from Port Lavaca. It proposes to build a bridge three miles across the bay, and the railway will then be built through the center of Refugio county to Sinton, and thence to Brownsville. Alexander Thompson, civil engineer at Houston, will conduct a preliminary investigation and make a survey of the proposed route.

Jackson, Miss.—New Orleans & Mississippi Midland Railroad Co., has called a meeting of stockholders to be held August 31 for electing directors and authorizing the construction of the proposed line through Louisiana (under the Mississippi charter), and without consolidation with any other company. Robert P. Duncan at Jackson, Miss., is first vice-president.

Jellico, Tenn.—Southern Railway has begun work to build an extension from Jellico through the "Narrows" up Clear Fork creek into the Clear Fork coal district. This is a route over which the Southern and the Louisville & Nashville sought for rights of way about a year ago. Louisville & Nashville secured rights and built through the "Narrows," and now it is claimed the Southern has a survey in that section which will prevent it from encroaching upon the Louisville & Nashville rights of way; J. M. Graham, general manager at Washington, D. C.

Jennings, La.—A meeting of citizens has been held and a decision reached to build a railway from Jennings to the oil fields, a distance of about six miles. It is estimated that $75,000 will be the cost of construction. Names of interested parties not announced as yet.

Juniata, Ala.—The Hollins, Heflin & Sylacauga Railroad is reported as building an extension from Woodbine to Moriah, fifteen miles. John A. Edwards is chief engineer.

Knoxville, Tenn.—Tracklaying has begun upon the Knoxville, Lafollette & Jellico Railroad. A tracklaying machine will be soon put to work.

Laurel, Md.—Laurel Traction Co. has obtained franchises for constructing a third-rail electric railway from Laurel to Washington, D. C.

Louisville, Ky.—It is reported that Armour & Co. of Chicago, Ill., are considering a plan to connect their Southern distributing point at Louisville by an electrical railway with Chicago.

Louisville, Ky.—The Illinois Central Railway is completing arrangements, so it is reported, for a direct route over its own rails to the Atlantic seaboard. It is stated that the company will soon secure control of the Tennessee Central, and will then build from Eldorado to Marion, thus establishing a direct line from Chicago and St. Louis to Nashville. Officials of both railways have refused to confirm the report as to control of the Tennessee Central, and this latter company has plans for expanding its terminal concessions at Nashville in accordance with the bill introduced at the last meeting of the Nashville city council. It will be recalled that Nashville voted $1,000,000 towards the construction of this road. J. T. Harahan is second vice-president of Illinois Central; office at Chicago, Ill.

Louisville, Ky.—Chicago & Philadelphia capitalists plan an electrical railway system to connect Madison, Wis., with Louisville through Chicago. They propose merging interurban lines in Indiana and Ohio and constructing whatever additional lines are necessary, both freight and passenger cars to be operated.

Lufkin, Texas.—Texas & Louisiana Railroad, which was recently acquired by the Cotton Belt, is to be immediately extended from its present terminus, a few miles east of Lufkin, to Newton, Texas, a distance of seventy miles. It will penetrate a virgin region that is heavily timbered. The road is to be ultimately extended to Beaumont.

Madisonville, Ky.—Reports state that local capitalists have determined to construct the proposed electric railway between this city and Nortonville, and steps are being taken to organize a company. Names of interested parties not announced as yet.

McKenny, Texas.—McKenny, Decatur & Western Railway is being organized to construct a railway from McKenny to Decatur and Bridgeport, Texas; also from McKenny east to Mansfield, La., and affording direct connection to the Gulf with the Kansas City Southern Railway, and as far west as Roswell, N. M. Construction to Decatur will begin within forty days. Preparations are being made for survey, D. A. Merrywether being engineer in charge. M. J. Healy of Canadian, I. T., will be vice-president and general superintendent.

Nacogdoches, Texas.—Plans are reported under way to build a railroad from Nacogdoches to the oil fields, sixteen miles.

Nashville, Tenn.—The Nashville, Chattanooga & St. Louis Railway is reported surveying for a connecting line sixty miles long from the end of the Tracy City branch to the end of the McMinnville branch. Hunter McDonald is chief engineer.

Nashville, Tenn.—W. D. Bellis, president of Reserve Loan Life Insurance Co., Indianapolis, Ind.; W. B. Gamble, Thomas S. Weaver, M. D. Smallman, W. S. Anderson and John M. Gaut have applied for charter for McMinnville, Woodbury & Nashville Railroad Co. to construct a railway from McMinnville to Nashville through Woodbury and Smith Springs, from the latter place a branch line to extend and connect with either the Tennessee Central near Nashville or the Nashville, Chattanooga & St. Louis at Donelson. Both steam and electricity will be used as motive power, probably adopting the third-rail electric system. Actual construction is expected to begin within a month. The nominal capital is $10,000, and it is said that the railway will be about eighty miles long, costing $2,000,000, to which amount the nominal capital will be increased.

New Orleans, La.—E. F. Merrill of Mobile, Ala., until recently president of the Mobile, Jackson & Kansas City Railroad, has under consideration a proposition to build a railway in Southwest Louisiana.

Newport News, Va.—Dispatches state that plans are on foot for a conference to discuss constructing a double-track electric railway between Newport News and Richmond. It is rumored that H. E. Huntington of New York may be interested.

Norfolk, Va.—Reported that the Southern Railway and the Atlantic Coast Line will make extensive improvements at Pinner's Point. W. H. Wells is engineer of construction of the former at Washington, D. C., and E. B. Pleasants is chief engineer of the latter at Wilmington, N. C.

Oakdale, La.—Industrial Lumber Co. is receiving material for the construction of its railway, which will make connection with Alexandria, La. The line will be thirty-five miles long.

Oklahoma City, O. T.—All the grading of the Texas Midland Railway from Oklahoma City to Coalgate has been completed with the exception of two miles. Laying of track has begun at Coalgate, and it is stated that trains will be running into Oklahoma City by December.

Palestine, Texas.—The International & Great Northern Railroad has opened the Madisonville branch from Navasota to Trice, thirty-two and one-half miles.

Placedo, Texas.—Gulf, West Texas & Pacific Railway has completed surveys for its extension from Placedo to Hines Bay, in Refugio county, a distance of twenty-five miles. It is stated that the work of construction will begin before September 1.

THE PROPOSAL COLUMNS of the Manufacturers' Record are invaluable in securing competitive bids from first-class firms for bond purchases and all kinds of construction work, as railroad (steam and electric), electric light plants, public franchises, waterworks, sewerage, municipal improvements and all public utilities; and whenever the regular issue of the Manufacturers' Record is too late for quick bids, the Daily Bulletin of the Manufacturers' Record, which reaches financial people, engineers, architects, contractors, etc., throughout the country—North, South, East and West—can be used to great advantage, as it is published every business day in the year.

Raleigh, N. C.—The North State Railroad has been chartered for the construction of a railway from Johnson's Mill in a southerly direction to some point in Harnett county, a distance of about ten miles. The capital stock is $50,000, of which amount $10,000 has been subscribed. K. B. Johnson of Cardenas, N. C., is the principal incorporator. Other incorporators are W. E. Sexton, R. Smith, H. H. Utley, W. L. Johnson, J. A. Valentine, J. L. Brown and others of Cardena, N. C.; F. T. Ricks and R. D. Godwin of Raleigh, N. C., and others.

Reading, Pa.—Reading, Lancaster & Southern Railroad Co. has filed for record a mortgage for $2,300,000, and it is announced that the company will construct a railroad from Reading to the Maryland line near Delta, and thence through the counties of Harford and Baltimore to the city of Baltimore. It is rumored that the new railway is in the interest of George J. Gould of New York, whose plans in connection with the Western Maryland Railroad and extensive developments at Baltimore have recently been detailed and announced. Isaac Spatz of Mohnsville, Pa., is president, and Sidney C. Long of Baltimore, Md., secretary. It is reported that Mr. Spatz has stated that at both Reading and Baltimore the new line will have important connections.

Richmond, Va.—F. I. Cabell, engineer of construction Chesapeake & Ohio Railway, informs the Manufacturers' Record that the company is doing nothing towards the extension of the Gauley branch just now.

Roanoke, Va.—The report that the Norfolk & Western Railway will be extended from Blair to Anderson's Bottom is denied by General Manager L. E. Johnson in a letter to the Manufacturers' Record.

San Antonio, Texas.—The Fort Worth & Rio Grande division of the St. Louis & San Francisco Railroad is reported as to be extended south from Brady to San Antonio, a distance of about 150 miles. It has not been announced whether this extension will connect with the Kerrville branch of the San Antonio & Aransas Pass for an entrance to San Antonio, or whether a new road will be built for the whole distance. Some heavy construction work will be required. B. L. Winchell is vice-president and general manager, St. Louis, Mo.

San Antonio, Texas.—A special meeting of the stockholders of San Antonio & Aransas Pass Railway Co. will be held August 15 to authorize amendment of charter so that said company shall be authorized to construct railway from a connection with its existing lines to Brownsville, in Cameron county; also to authorize construction of branch line from some point on said Brownsville line into Hidalgo county. It is reported that at the meeting the necessary authority will be given for extending the road to Tampico, Mexico. Construction of the extension to be built from Alice, Texas, to Brownsville, 160 miles, is already in progress. Application will be made to the Mexican government for a concession for the proposed Tampico line. It will connect with the Mexican Central at Tampico.

Savannah, Ga.—Chattahoochee & Gulf Railroad Co. will soon arrange for the construction of its extension of the main line for a distance of about twenty-four miles beyond Sellersville, Ala. Probably bids will be called for after the bonds are sold, proposals on which are to be opened August 22. H. W. Johnson, 26 East Bryan street, is secretary.

Snyder, O. T.—Reported that work has been stopped on the Oklahoma Central, Mountain Park & Northwestern Railroad, under construction near here.

St. Louis, Mo.—The Middlebrook, Graniteville and Belleview Railway Co. is reported incorporated to build from near Middlebrook, in Iron county, to Graniteville, about five miles. O. E. Rugg, James J. O'Toole and others of St. Louis are interested.

Tifton, Ga.—Atlantic & Birmingham Railway is grading a line through the southern part of Tifton to connect the Tifton & Northeastern Railway and the Tifton, Thomasville & Gulf Railway, making a through line from Fitzgerald to Thomasville. George Dole Wadley is vice-president and general manager of A. & B. Railway, Waycross, Ga.

Street Railways.

Augusta, Ga.—The Augusta Railway & Electric Co. will, it is understood, consider questions of improvements at a meeting to be held about August 15.

Bessemer, Ala.—Birmingham Railway, Light & Power Co. of Birmingham, Ala., is reported as contemplating the construction of railways in Bessemer, for which it received charter last year. It is stated that the routes have been surveyed, and that work will soon begin.

Fort Worth, Texas.—Local capitalists propose constructing an electrical railway from Fort Worth to Arlington Heights, a distance of three and one-half miles, and a franchise will be asked for at the next meeting of the city council. Names of promoters not announced as yet.

Jonesboro, Ark.—Mobile Rapid Transit Co. has been incorporated, with a capital of $10,000. W. W. Cate is president; Rudy Copeland, secretary, and J. H. Little, treasurer.

Mobile, Ala.—The Mobile Light & Railroad Co. has begun the building of an extension.

New Cumberland, W. Va.—Franchises are reported granted to the Aarons Company for a street railway from Grant district to Congo, a village opposite Wellsville, Ohio; also to Chas. Smith for the Chester-street railway from Chester to connect with the present road at Congo.

New Orleans, La.—The Belt Railroad Commission has, it is announced, reached a decision under which the city will build the unfinished part of the Belt road from Henderson to Clouet street, two and one-half miles. It is estimated that it will cost $7500 per mile, or $37,500, for the double track, in addition to the cost of equipment.

Wheeling, W. Va.—The City Railway will, it is stated, begin work on Wood and Forty-fifth streets upon its proposed extension.

Machinery, Proposals and Supplies Wanted.

Manufacturers and others in need of machinery of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery needed we will make their wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. The MANUFACTURERS' RECORD has received during the week the following particulars as to machinery that is wanted.

Agricultural-implement Works.—J. C. Covington, Judson, S. C., has patent fertilizer distributer and wishes to negotiate with concerns who make castings and plows complete relative to having work done; wants to contract for 1000 at once.

Aluminum Novelties.—Justin Matthews, Little Rock, Ark., wants to correspond with firms manufacturing aluminum novelties.

Belting.—See "Railway Equipment."

Boiler and Engine.—Seminole Lumber Co., Lake City, Fla., is in market for return tubular boiler of 125 horse-power and one slide-valve engine of 100 horse-power.

Boiler and Engine.—"Power," care of Manufacturers' Record, Baltimore, Md., wants Corliss engine, 300 horse-power, rope drive preferred; state make, date and price f. o. b. Louisville, Ky.; also wants water-tube boilers and two, three and four-inch shafting and hangers.

Boilers and Engine.—Alabama-Virginia Iron Co., Florence, Ala., wants two 75-horse-power boilers and one 50-horse-power engine.

Boxes.—See "Shelving, etc."

Bridge Construction.—Geo. E. Garrett, office of supervisors, St. Elmo, Alexandria county, Virginia, will receive proposals until August 10 for constructing steel highway bridge over Four-Mile run.

Bridge Construction.—D. F. McAlister, supervisor Oconee county, Walhalla, S. C., will award contract August 8 for constructing Pickens and Lawrence bridges over Keowee river. Plans and specifications will be exhibited on day of letting, and are on file at offices of county commissioners at Walhalla and Pickens C. H. Bond required and usual rights reserved.

Building Material.—Seminole Lumber Co., Lake City, Fla., is in market for 15,000 square feet galvanized iron or steel roofing.

Building Material.—Anthony Hall, Paris, Ark., will purchase structural and ornamental iron, metal ceiling, steel roofing, etc.

Building Materials.—Knoxville Gaslight Co., A. W. Young, superintendent, Knoxville, Tenn., will require for retort house steel roof to cover building 112 feet 3 inches by 39 feet 4½ inches inside dimensions, one charging floor 25 feet by 112 feet 3 inches, stairway to connect with ground floor seven feet eight inches below charging floor.

Building Materials.—Citizens' Light & Transit Co., Pine Bluff, Ark., is in market for steel roofing and girders. Address J. B. Trescott, general superintendent.

Button Manufacturers.—Scott-Cameron Detachable Tag & Showcase Co., Brookhaven, Miss., wants address of the factory making the Washburn buttons.

Cannery Equipment.—W. A. Mahoney, Fernandina, Fla., will buy complete cannery equipment, including boiler, trucks, wheelbarrows and second-hand iron oyster steam box.

Cannery Machinery.—J. F. Wolters, La Grange, Texas, wants to correspond with manufacturers of cannery machinery.

Cement Works.—Chas. W. Carlton, Anniston, Ala., wants to correspond with manufacturers of machinery and appliances for making cement, both natural and Portland.

Coal-conveying Equipment.—Tar River Oil Co., Tarboro, N. C., is in market for an arrangement to unload coal from barges or vessels, to be carried up a hill to bins or pockets.

Dredging.—J. B. Cavanaugh, captain, engineers, United States engineer office, Montgomery, Ala., will receive sealed proposals until August 12 for dredging at West Pass entrance to Apalachicola Bay, Fla. Information furnished on application.

Electrical Equipment.—See "Water-power Development."

Electric-light Plant.—Bids will be received until August 12 for installation of electric-light plant at Cheraw, S. C. For plans and specifications apply to Mayor W. Allen Benton or L. F. Westerlund, E. E., in charge.

Electric-light Plant.—Tar River Oil Co., Tarboro, N. C., is in market for isolated electric-lighting plant with capacity of about seventy 16-candle-power lights; also 10-horse-power automatic engine in connection with same.

Electric-power Plant.—H. P. Mackey, secretary Blue Ridge Electric Light & Power Co., Blue Ridge, Ga., wants bids on complete equipment for construction of and operation of water-power electric-light plant.

Engine.—See "Electric-light Plant."

Engine.—H. A. Rankin, Fayetteville, N. C., wants to buy second-hand 15 to 20-horse-power engine.

Engine.—Saluda Trade Co., Lock Box 2, Saluda, N. C., wants prices on traction engine of ten to twelve horse-power sufficient to haul five to six loaded wagons in hilly country.

Engine.—See "Woodworking Machinery."

Engines.—Steinl Improved Chimney Construction Co., J. B. Dryer, president, Birmingham, Ala., will need a few gasoline hoisting engines.

Excelsior Machinery.—Jas. R. Ligon, 218 S. Main street, Sumter, S. C., wants to correspond with manufacturers of excelsior machinery.

Fire-protection System.—Atlanta Terra Cotta Co., V. H. Kriegshaber, president, No. 6 North Forsyth street, Austell Building, Atlanta, Ga., is in market for system of fire protection, consisting of underwriters' duplex steam fire pump 16x9x12, 15,000-gallon steel tank, 1000 feet of six-inch water pipe, valves, fittings, etc., seven standard hydrants and 1000 feet of standard cotton rubber-lined hose.

Fuel-burning Equipment.—J. A. Kenney, Jennings, La., wants a mechanical feed straw burner or device to feed straw as fuel to boiler furnace for making steam; boiler is 100 horse-power.

Hoisting Equipment.—See "Engines."

Hoisting Equipment.—See "Coal-conveying Equipment."

Hoists.—Frederick V. Abbott, major, engineers, office of chief engineers, War Department, Washington, D. C., will receive sealed proposals until September 2 for furnishing and delivering chain ammunition hoists. Information furnished on application to office of chief engineers or to Capt. Harry Taylor, engineer, Winthrop Building, Boston, Mass.

Knit Goods.—Talcum Puff Co., Lock Box 707, Asheville, N. C, wants addresses of firms who are in the market with knitted goods especially designed for the working up of fancy souvenir articles in face powders.

Lighthouse.—Proposals will be received at office of lighthouse engineer, fifth district, Postoffice Building, Baltimore, Md., until September 3 for furnishing the material (except metal work) and labor of all kinds necessary for construction, erection and delivery of the Baltimore lighthouse, Maryland, in accordance with specifications and drawings, copies of which, with blank proposals and other information, may be had upon application to W. A. Jones, colonel, corps of engineers, U. S. A.

Mattress Machinery.—See "Woodworking Machinery."

Metal-working Machinery.—S. A. Barker, superintendent Elba Manufacturing & Veneering Co., Elba, Ala., wants a machine that will fold and put a tin band on paper box; box has capacity for holding one gallon; wants machine that will set up about 12,000 in ten hours.

Mill Supplies.—See "Boiler and Engine."

Mill Supplies.—See "Shafting."

Mining Equipment.—Cataract Colliery Co., C. E. Krebs, secretary, Kanawha Falls, W. Va., will need wire rope for incline plane, drum for same and two monitors for running coal to tipples.

Mining Equipment and Supplies.—Micajah Coal & Coke Co., E. M. Merrill, general manager, Lester, W. Va., will be in the market in about ninety days for a full line of mine supplies and general mine equipment.

Oil Tank.—Knoxville Gaslight Co., A. W. Young, superintendent, Knoxville, Tenn., will want one steel oil tank, capacity 10,000 gallons.

Overall Machinery.—J. R. Buchanan, Sardis, Miss., wants to correspond with manufacturers of machinery for making overalls and jumpers.

Piers, etc.—Quartermaster, Fort Fremont, S. C., will receive proposals until August 14 for painting hospital at Fort Fremont and constructing brick piers under same. Information furnished on application. United States reserves usual rights.

Pipe.—Alabama-Virginia Iron Co., Florence, Ala., wants 275 feet 10-inch cast-iron water pipe, bell joint; 550 feet eight-inch cast-iron water pipe, bell joint; 150 feet four-inch cast-iron water pipe, one eight-inch T with four-inch branch, twenty-five pieces of tank steel ¼ inch x 36 inch x 120.

Pump.—Alabama-Virginia Iron Co., Florence, Ala., wants one duplex pump, 10-inch suction, eight-inch discharge.

Railway Equipment.—Ohio Valley Pulley Works, Maysville, Ky., wants cars and material for building one mile of tramway for handling lumber from portable saw-mill to railroad station.

Railway Equipment.—Citizens' Light & Transit Co., Pine Bluff, Ark., is in market for one mile 75-pound girder rail. Address J. B. Trescott, general superintendent.

Railway Equipment.—See "Engine."

Railway Equipment.—E. V. Wyssbred & Co., Panola, Ky., are in market for five miles of relay rails and two small locomotives suitable for use on tramroad.

Railway Equipment.—Alabama-Virginia Iron Co., Florence, Ala., wants one H. K. Porter saddle-tank dinkey eight-ton 36-inch gauge, 3000 lineal feet 30-pound steel rails and fastenings, 1000 lineal feet 18-pound steel rails and fastenings and one six-ply 18-inch belt.

Road Improvement.—Board of road commissioners of the ninth district of Baltimore county will receive sealed proposals until August 4 at office of the Baltimore county roads engineer, W. W. Crosby, Towson, Md., for improving a section of the Hillen road. All bids to be upon blank forms obtained at office of the county surveyor at Towson, Md. $2000 bond required and usual rights reserved. Plans and forms of specifications and contract may be seen at office of county surveyor.

Sewage-disposal Plant.—West Arlington Improvement Co., Henry F. New, treasurer, 211 Union Trust Building, Baltimore, Md., will receive proposals until August 15 for installation of sewage plant to provide for 600 people. For further information address the treasurer.

Sewer Construction.—Bids will be received until September 20 by the sewerage and water board, F. S. Shields, secretary, New Orleans, La., for construction of approximately 15,000 feet of small sewers and appurtenances on certain streets about to be paved. Plans and specifications can be seen at office of board after August 15. Usual rights reserved.

Sewing Machines.—See "Overall Machinery."

Shafting.—Baker, Stillwell & Hart, Birmingham, Ala., want forty-five feet of second-hand shafting 2 15-16 inches in diameter, complete with couplings, and an eight-post hanger for same.

Shelving, etc.—Washington Hardware & Supply Co., Carl H. Richardson and John H. Fulford, proprietors, Washington, N. C., wants prices on hardware shelving and boxes.

Soda-fountain Supplies.—The Benjamin-Ozburn Company, Atlanta, Ga., wants to correspond with parties who can supply draught arms, faucets, jars, block tin, etc., for the manufacture of soda fountains.

Street Paving.—T. A. Blaise, city clerk, Oklahoma City, O. T., will receive sealed bids until August 10 for paving, grading,

curbing and draining certain streets in accordance with plans and specifications on file in city clerk's office. Certified checks to accompany bids. Bonds required and usual rights reserved.

Street Paving.—T. A. Blaise, city clerk, Oklahoma City, will receive bids until August 10 for grading a portion of Sixth street in accordance with plans and specifications on file. Certified check for $50 must accompany each bid; $250 bond required and usual rights reserved.

Street Paving.—Thomas Crawley, mayor, Alexandria, La., will receive bids until August 12 for paving approximately 7200 square yards of street with vitrified brick or asphalt and for furnishing all necessary iron footplates and culverts. Certified check for 20 per cent. of amount of bid must accompany each proposal. Work to be done in accordance with plans, specifications and details on file in mayor's office. Usual rights reserved.

Subsiding and Coagulating Basins.—Chas. E. Bolling, superintendent, Richmond, Va., will receive sealed proposals until September 1 for construction of subsiding and coagulating basins and the work pertaining thereto. Approximate estimate of work to be done $300,000. Information on application. Usual rights reserved.

Telephone Construction.—Western Telephone Co., C. L. Alderman, general manager, Big Springs, Texas, will contract for 150 to 200 miles of toll lines.

Textile Machinery.—John T. Bailey & Co., Water and Tasker streets, Philadelphia, Pa., want 14-inch and 16-inch tin or fiber roving cans.

Water-power Development.—S. P. Mathews, Kirksey, S. C., will develop water-power, using electrical transmission, and wants to correspond with parties manufacturing or dealing in the necessary machinery.

Water Tower and Lodge.—Henry B. F. Macfarland, Henry L. West, John Biddle, District commissioners, Washington, D. C., will open bids August 15, instead of August 8 (as lately reported), for water tower and lodge at Fort Reno, D. C.

Water-works.—E. W. Wells, city clerk, Gulfport, Miss., will receive sealed proposals until August 25 for furnishing materials, labor, tools and appliances for construction of system of water-works in accordance with plans and specifications on file at city clerk's office and at office of Wm. F. Wilcox, engineer, Jackson, Miss.; work consists approximately of one eight-inch artesian well, 800 tons six-inch to 14-inch cast-iron pipe, fifty fire hydrants, fifty valves, fifteen tons specials, one 2,000,000-gallon compound duplex pump, one 200,000-gallon brick receiving basin, etc. All bids must be made on blanks furnished and accompanied by certified check for $500. Usual rights reserved.

Woodworking Machinery. — Richmond Cedar Works, Richmond, Va., wants second-hand 24-inch double surfacer, sectional rolls.

Woodworking Machinery.—John Marshall & Co., Apalachicola, Fla., want new or second-hand matcher for planing mill, and small horizontal engine, not over six-inch bore.

Woodworking Machinery.—Bamberg Iron Works, Bamberg, S. C., will be in the market for one 50-inch veneer machine that will cut one-thirty-second inch to three-quarters inch, and one 52-inch clipper; second-hand machinery preferred.

Woodworking Machinery.—James W. Hollingsworth, Louisburg, N. C., wants prices on machinery for making chairs, spokes, handles, mattresses, washboards, etc.

Woodworking Machinery.—Citizens' Light & Transit Co., Pine Bluff, Ark., is in market for one 24-inch-swing lathe. Address J. B. Trescott, general superintendent.

TRADE NOTES.

Coal and Timber Lands.—A tract of 24,000 acres of timber and coal lands is offered for sale by J. H. Boggs of Nicholasville, Ky.

Ice Machine.—A 10-ton ice machine, to be installed at Carrabelle, Fla., has been sold by the Columbus Iron Works Co. of Columbus, Ga., to H. C. Croom, Jr., & Co., Tallahassee, Fla.

Capital for Brick Works.—It is proposed to establish a $50,000 brick-manufacturing plant at Houston, Texas, and H. E. Fuller & Co. are promoting the enterprise. This firm is desirous of corresponding with experienced brick manufacturers who will become interested in the plant and furnish half the amount of money named.

Riding Galleries or Merry-go-Rounds.—The third annual outing of the employes of Herschell, Spillman & Co., manufacturers of riding galleries or merry-go-rounds at North Tonawanda, N. Y., on August 1 was distinguished by a programme that was full of enjoyment for both participants and spectators. Music was furnished by a miltary band.

Employes' Picnic.—A shop picnic will be given on August 8 by the firm of F. E. Myers & Bro. of Ashland, Ohio, and the Erie Railroad Co. has notified the concern that thirty-six coaches will be provided to convey the party of employes to and from Silver Lake. The firm are manufacturers of force and lift pumps, hay carriers, forks, pulleys, door hangers, etc.

Large Electrical Contract.—One of the largest contracts for electrical construction that has been awarded in the South was that secured by the Standard Electric Co. of Norfolk, Va., last week. The contract calls for the electrical installation in the new mills of the Merrimack Manufacturing Co. at Huntsville, Ala., for which Messrs. Lockwood, Greene & Co. of Boston are the engineers.

A Business Opportunity.—A. P. Dyke of Hope, Ark., advertises on page 40 an ice plant in a Missouri town of 5000 inhabitants. The plant not only manufactures ice, but furnishes cold storage in a place where apple-growing is extensive. He also presents other business chances in and around the town of Hope, which is a thriving railroad center, with other lines in course of building.

Louisiana Pine Timber Land.—Some of the best and largest tracts of pine timber land in the South are located in Louisiana. Valuable acreages of this land are constantly on the market, and Joseph R. Putnam, offices in Portland Bluff, Chicago, offers for sale some of the properties. One of his tracts of 25,000 acres will cut about 14,000 feet per acre, one of 30,000 acres will cut about 7000 feet. Write for plats and prices on all the lands Mr. Putnam offers.

A New Clevis.—Mine-owners and others who find use for the clevis will be interested to know that a new style clevis has been invented. This new clevis is remarkably strong and durable, and will save, it is stated, many times its cost in preventing runaways and wrecks. State and shop rights on the device can be secured now. W. R. Keith of Coal Creek, Tenn., who is interested in Tennessee mining enterprises, invented the new clevis, and can be addressed for particulars regarding it.

Gas and Gasoline Engines.—The White-Blakeslee Manufacturing Co. has been organized at Birmingham, Ala., with a capital of $200,000, and takes over the entire business of the Blakeslee Manufacturing Co., maker of gas and gasoline engines, veneer-cutting machinery, pumps, etc. The officers are C. B. White, president; James Bowron, vice-president; R. E. Lockett, treasurer, and J. B. Scully, secretary. The company, which has been active in developing this line of manufacture in the South, proposes to further enlarge its operations.

New Engineering Firm.—Myers, Finney & Morrison is the style of a new firm of engineers, with offices at Washington, D. C., and Richmond, Va. The members thereof are Messrs. E. T. D. Myers, Jr., John H. Finney and Hugh S. Morrison. They announce that they are prepared to make surveys, estimates, specifications and reports, and also to furnish designs, inspection and superintendence of electric railway, power and lighting plants, water-power installations, industrial plants, factories and kindred enterprises. They also offer to act as arbitrators upon engineering questions.

Alsing Company's New Offices.—An announcement that will interest many readers is that concerning the new office address of the J. R. Alsing Company of 75 Guernsey street, Brooklyn, N. Y. This company is widely and well known for its crushing, grinding, drying and pulverizing machinery. Its new office address is 136 Liberty street, where all correspondence should hereafter be addressed, and where personal visits are solicited from buyers and the trade. This change has been found necessary for the convenience of patrons and others. The factory will be continued at the old location.

Manufacturing Abrasives.—Two more additions to its already extensive plant, another new kiln and recent installation of new machinery, etc., for making pressed emery wheels is the report that comes from the Abrasive Material Co. of Philadelphia. The present abrasive emery wheel, so well known in every line of trade, is made by the vitrified process, and by reason of its fast free cut has given such satisfaction in all classes of grinding that it is recognized as the ideal. The maker, however, realizes the need of special wheels for special purposes, and has decided to place on the market a pressed wheel that will for its special work equal those made by the vitrified process.

Schonthal Steel Rails.—One of the most modern plants of its character in the United States is that operated at Cumberland, Md., by the Schonthal Iron & Steel Co. This company manufactures light steel rails and other products. It has just resumed operations after a shut-down of two weeks, due to lack of raw materials, during which time the equipment was overhauled. The majority of raw material used consists of steel rails—about 1000 tons each month—brought from Germany. The steel rails manufactured are offered in competition with any rails made from billets, and the Schonthal Company's customers are constantly expressing their satisfaction at the results.

Steam and Direct-Heat Dryers.—The C. O. Bartlett & Snow Co., manufacturers of mill and labor-saving machinery at Cleveland, Ohio, announces that it has at considerable expense erected at its works two of its dryers, one being a Triumph steam dryer and the other a direct-heat rotary dryer. The company states that it will be glad to make careful test runs to dry any kind of material either by steam or direct heat for intended purchasers, under the following conditions: All materials to be shipped charges prepaid, and shippers to send, when possible, some competent man to take charge of results, such as cost, time required, amount of moisture taken out, etc. The company further says it makes no charges for use of dryer or power, but will charge only actual cost for labor required for handling the material to be dried. From 500 pounds to a carload may be sent, and actual results will be shown. "This," says the company, "we trust offers an opportunity which will be appreciated by many."

Pneumatic Tools and Drills.—The old and well-known firm of Thos. H. Dallett & Co. of Philadelphia has lately been reorganized and incorporated as the Thos. H. Dallett Co., with officers as follows: President, Thos. H. Dallett; vice-president and general manager, Ernest C. Bliss; secretary and treasurer, E. C. Clay, with W. H. Van Sickel, lately New York representative of the Underfeed Stoker Company of America, and formerly identified with the pneumatic-tool industry, as superintendent. The company will greatly extend and enlarge the capacity of its plant located at York street and Sedgley avenue, and while continuing the manufacturing of their well-known belt and electrically-driven portable drills, deck planers, etc., will devote especial attention to the production of "Dallett" pneumatic tools. Its works are equipped with the latest and most improved machinery, and the extensions projected are necessary to enable it to supply the demand for the "Dallett" tools, which have by their intrinsic merit gained an enviable reputation.

Drilled Wells.—The Sydnor Pump & Well Co. of Richmond, Va., has closed a contract with Col. John Murphy for a deep-drilled well and an electric pumping plant to furnish water for his hotel. On the same premises there will be erected a large storage warehouse to be occupied by Sydnor & Hundley, dealers in furniture, but in which the Sydnor Pump & Well Co. will install more or less woodworking machinery to be used in the general manufacture and repair of furniture. The company will also put in a combination hand and power driven elevator, and states that it is in the market for such machinery, and would like to have prices. This company further reports that it is drilling large numbers of wells throughout Virginia, North Carolina and South Carolina, particularly in the tidewater sections, and is obtaining most satisfactory results. Sydnor's patent air-lift outfits are being installed in nearly all of these deep wells where conditions are suitable, and the company says it is ready to submit to a competitive test for this device, believing that it will pump more water with less air than any other known invention. It has already been tested with successful results.

TRADE LITERATURE.

Steam Pumping Machinery.—The Weinman Machine Works of Columbus, Ohio, manufacturers of steam pumping machinery, have issued for pocket use a neat and convenient table of capacity of pumps in gallons per stroke. The diameter of cylinder and length of stroke in inches are given, and the table is printed on both sides of a card, which is enclosed in a celluloid case, but through a slot on either side one may read the exact figures relating to any capacity of pump desired.

Scientific Attrition Mills.—The Foos Manufacturing Co. of Springfield, Ohio, has issued a neat illustrated catalogue describing the Scientific attrition mills manufactured by it for grinding and crushing cereals. Copies will be sent free to all millers, who will doubtless appreciate the book, especially because it contains, in addition to complete data about the various styles of mills made, a convenient table stating the food contents of stock-feed materials. This includes everything from corn to cowpeas, and, as it says, "every miller can arrange to satisfy his customers by giving them a stock feed having the digestible nutrients required by the individual taste of each and every customer forming his trade."

S. K. C. Induction Motors.—Bulletin No. 136 of the Stanley Electric Manufacturing Co., Pittsfield, Mass., is devoted to S. K. C. induction motors. To complete its line of high-grade alternating-current apparatus the company now offers a comprehensive line of induction motors recommended as being of the usual S. K. C. standard. The induction motor, because of its simple construction, operation and high efficiency, is becoming more and more popular, not only as an adjunct to the great transmission systems where alternating currents are necessarily employed, but also for local distribution of power in factories, mines and other industrial establishments. There are three distinct types of the S. K. C. induction motors. Send for bulletin.

Port Arthur's Advantages.—A convenient pamphlet entitled "A Good Field for Investments" has been issued, setting forth the plans for Port Arthur, Texas, of the Port Arthur Light & Power Co., the Port Arthur Water Co., the Port Arthur Dock Co. and the Port Arthur Ice & Cold Storage Co., with an aggregate capitalization of $250,000, of which $165,000 has been subscribed. The four plants of these companies will be operated through one clerical office and one boiler-power plant. The plants will be concentrated on one tract of land, and are expected to be in active operation within the next three months, as contracts have been awarded, the construction of the power-house is under way, and machinery is en route. The pamphlet describes in detail these plants, and gives in condensed form facts about the advantages of Port Arthur.

All About Lead Pencils.—When a man wants a lead pencil he desires such an one as will be perfectly suited to his work. To enable him to make the proper selection the Joseph Dixon Crucible Co. of Jersey City, N. J., manufacturer of the well-known Dixon pencils, has published an excellent little book entitled "Dixon's Index for Pencil Users." This describes the qualities of the various kinds and grades of pencils made by the company, and in such a manner that anyone after consulting it will be able to accurately choose one for himself. The book is neatly and agreeably illustrated, a number of patterns being shown. The reading matter is prepared in narrative style, and artist, business, professional and school pencils are each described under a separate head. The methods of manufacturing pencils are also related in an entertaining manner.

Perforated Radial Brick Chimneys. — A pamphlet describing radial brick chimneys is issued by the Alphons Custodis Chimney Construction Co. of New York, of which the Tatnall Engineering Co. is representative at 710 Arcade Building, Philadelphia. It is stated in the book that this method of constructing chimneys was originated by Alphons Custodis in Germany some thirty years ago, and since then the company has built more than 4000 chimneys in all parts of the world. The chimneys range in height from thirty feet to 365 feet, the latter being at the works of the Orford Copper Co. at Constable Hook, N. J. Several pages are devoted to a descriptive text and diagrams showing the method of bonding and the protective sectional lining of the chimneys. There are also many fine illustrations of chimneys which have been built both in Europe and America, and a long list of references in this country is presented.

To Develop Huntington.—A prospectus of Huntington, W. Va., with a statement of the opportunities for industries there, is in press, and will be widely distributed by the Huntington Land Co., recently organized with a paid-up capital stock of $350,000 for the purpose of providing desirable and cheap manufacturing sites, for plants seeking new locations with facilities for shipping, fuel advantages and general conveni-

ences, and permitting enlargements when necessary. The company has acquired large tracts of land at Huntington, Hinton, Hurricane, St. Albans and Winnefrede. The officers of the company are: President, B. W. Foster, formerly manager of the Huntington interests in West Virginia; vice-president, C. L. Ritter of the big lumber company of that name; treasurer, Senator G. A. Northcott, clothing merchant, of Huntington; secretary, B. L. Priddie of Huntington; executive committee, E. W. Staunton of Charleston, chairman; Senator Alex. McVeigh Miller of Greenbrier county, Geo. F. Miller, J. L. Caldwell and F. B. Enslow of Huntington.

Precision Lathes.—The Pratt & Whitney Company has just issued one of its standard 6x9 booklets on its bench lathe, 10-inch toolmakers' lathe, 13-inch engine lathe and 14-inch gibbed carriage engine lathe. The book of sixty-seven pages is fully and handsomely illustrated with excellent half-tone plates. The first thirty-seven pages are occupied by a description of the 7x32-inch bench lathe, which is described in detail, and illustrations are given of more than thirty of its various attachments, giving an adequate idea of the great diversity of work for which the machine is adapted. The 10-inch toolmakers' lathe is also carefully described, and illustrations are given showing the application of the collets and split-step chucks to the spindle. There are two views of the 14-inch lathe, one showing the standard lathe, the other the lathe with pan bed. A number of important attachments for this lathe are illustrated and described. These include the relieving attachment for relieving straight, taper and spiral taps and milling cutters, drawback collets, step chucks and closers and expanding arbors. While these lathes perhaps are not applicable to rough shop use, anyone who cares for good machines or who has to do accurate work will appreciate them. The Niles-Bement-Pond Company, 136 and 138 Liberty street, New York, handle these lathes.

Bricks for Furnaces, Ovens, Kilns, etc.—An excellent catalogue, finely bound in crimson seal leather, has been issued by the Harbison-Walker Company of Pittsburg, Pa., containing in a form very convenient for the pocket useful information in connection with the use of its silica, magnesia, chrome and fire-clay brick and various refractories. The book, which is handsomely printed in colors on heavy calendared paper, gives a full description of the various kinds of brick manufactured, with directions and suggestions regarding their use. The illustrations display the shapes, colors and sizes of the bricks, and plans are presented showing plainly how they may be used in the building of blast furnaces and blast-furnace stoves, steel furnaces, coke ovens and kilns. Tables giving the different sizes of bricks appear towards the back of the little volume, and there are, besides, tables of weights and measures which would prove useful in making estimates. The daily product of the company is stated as 600,000 and the yearly product as 180,000,000. It has twenty works, divided into four departments—1st, the Benezet department, with works at Pittsburg and Homestead, Pa.; 2d, the Woodland department, with works in Clearfield, Cambria and Clinton counties, Pa.; 3d, the Star silica department, with works in Huntingdon county, Pennsylvania, and 4th, the chrome and magnesia department, with works at Homestead, Pa. The general offices are in the Park Building at Pittsburg.

The number of interesting and valuable facts throwing strong light upon the early history of the region around Norfolk, Va., seems almost inexhaustible, judging from the patient, careful unearthing and publication of them by Mr. Edward Wilson James in the Lower Norfolk County Virginia Antiquary. In Part III of Vol. IV of that quarterly Mr. James has presented in a list of the property-owners in Princess Anne county in 1782 material for the study of social conditions of the time. He has given, moreover, transcripts from the records of the church in lower Norfolk county, abstracts from Norfolk county marirage bonds, and much additional information about the students for several years at Miss Serena Holden's school. Several especially interesting facts in other lines are mentioned, not the least of which appear in the following letter to the editor from Major Jonathan Hunter, written twenty years ago and relating to large families in Princess Anne county. Major Hunter wrote: "In 1820 I passed by Mr. Watters, and was shown five houses all in sight and farms adjoining with the old people living and each with ten children, making sixty persons in five families, and Major Morris (living only two or three miles from Watters) wife died, leaving nine children. Morris married a widow Harrison with nine children, and they had a son Davidton, who is now living in Norfolk, so there were twenty-one in the family. If you come across a farm as prolific in Cereals as that neighborhood was in children I would advise you to buy it."

GOLD IN CAROLINA.

Mr. T. K. Bruner's Estimate of the Possibilities.

Mr. T. K. Bruner, secretary of the North Carolina department of agriculture, says that within a radius of fifty miles of Salisbury there are more than 400 known localities where gold, silver and copper bearing ores are being found and identified. In an interview with the Raleigh News and Observer he recalled his special investigation of that region, said that he expected to see the day when millions of gold will be taken from Guilford, Randolph, Davidson, Rowan, Montgomery, Stanly, Cabarrus, Union, Mecklenburg, Anson and Moore counties, and added:

"A geological survey of this region would simply mean an identification of the rocks exposed on the surface, and a description of the mining already done in the seams and fissures of the mother rock. That much is already pretty well known. What we want to know now is where these fissures, seams and veins occur in the country rock. They are the gold-bearers. The farmer with his plow and hoe is just as apt to turn up the precious metal as the prospector with pick and shovel.

"It is there, and in rich quantity, for the finder. Some systematic investigation with money enough behind it to expose and locate these fissures seems to me the only practical way to solve this problem. However, the rich finds recently reported may bring a score of miners with pick and pan to delve among the rocks to find nature's storehouse of precious metals.

"Why, in the township of El Dorado in Montgomery county," said he, "there is not ten feet of road that will not show the color of gold if carefully panned.

"Once I went over one 200 feet wide and a half mile long right through the woods, and took samples every ten feet. I had those samples assayed, and the average was $8 to the ton."

It is announced that C. E. Coon & Co. of Houston, Texas, have sold $500,000 in bonds of the San Saba Irrigation Co. of San Saba, Texas.

FINANCIAL NEWS.

The Manufacturers' Record invites information about Southern financial matters, items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

New National Banks.

At the close of business on July 31 there were in this country 5044 national banks with authorized capital stock of $758,137,695, bonds on deposit as security for circulation $380,173,030, on which circulating notes to the amount of $377,606,826 have been issued. Of these banks, forty-three were chartered during July with an aggregate capital of $2,912,500. Four of them were conversions of State banks, nineteen reorganizations of State or private banks liquidated for the purpose, and twenty were new organizations. Since March 14, 1900, the date of the passage of the act authorizing the incorporation of banks with minimum capital of $25,000, there have been organized under that law 1065 banks with aggregate capital of $27,813,000. During the same period 576 banks with a capital stock of $50,000 or more were organized with an aggregate capital of $71,145,000. Of the new banks with capital less than $50,000 the South has 254 with aggregate capital of $6,815,000, and with capital more than $50,000, 164 with aggregate capital of $15,020,000.

A New Publication.

The Manual of Statistics Supplement is a new monthly publication issued by the Manual of Statistics Co., 220 Broadway, New York, the first number being published for July. As its name indicates, the Supplement is designed to supplement the work of the Manual by furnishing timely and accurate data about current financial operations. The editorials treat of subjects which may be before the public, and the entire nature of the magazine is such as to make it seasonable and reliable. Quotations of the New York, Boston and Philadelphia exchanges are presented, as well as various information about securities that are prominent. The Supplement is to be published every month, with the exception of May and June, and a neat and convenient binder may be obtained for holding the numbers as they come. The annual subscription for ten numbers is $5.

Huntington, W. Va.—This city has voted the issuance of $25,000 additional bonds for completing school buildings now in course of erection. Address "The Mayor."

Wake county commissioners, Raleigh, N. C., have ordered elections in Raleigh and three other townships on September 22 to vote on subscribing $58,000 to the second mortgage 6 per cent. bonds of the Raleigh & Pamlico Sound Railway.

Chattanooga & Gulf Railroad Co., H. W. Johnson, secretary, 96 Bryan street, east, Savannah, Ga., will open bids August 22 for all or any portion of his company's proposed issue of $108,000 bonds. Citizens' National Bank of Savannah will act as trustee. These will be first mortgage 5 per cent. 30-year gold coupon bonds to pay for a 24-mile extension.

The plans for the annual convention of the Maryland Bankers' Association provide for it to be held jointly with the convention of the District of Columbia bankers on September 24. It is proposed to charter a steamer and go from Washington to Norfolk, Old Point and Newport News, Va. The business sessions of the convention are to be held on the steamer while going from place to place.

[For Additional Financial News, See Pages 36 and 37.]

THE PROPOSAL COLUMNS of the Manufacturers' Record are invaluable in securing competitive bids from first-class firms for bond purchases and all kinds of construction work, as railroad (steam and electric), electric light plants, public franchises, waterworks, sewerage, municipal improvements and all public utilities; and whenever the regular issue of the Manufacturers' Record is too late for quick bids, the Daily Bulletin of the Manufacturers' Record, which reaches financial people, engineers, architects, contractors, etc., throughout the country—North, South, East and West—can be used to great advantage, as it is published every business day in the year.

TABLE OF CONTENTS.

EDITORIAL: Page.
Car Famine Begins.... 37
Rise of the Mills.... 37
Southwestern Immigration Workers.... 37
"Boosting" Corporations.... 37
No Halt in Prosperity.... 37
Europe's Alarm Over the Cotton Situation.... 38
Suicide.... 38
Threshing Old Educational Straw.... 38
The South in the Next Ten Years.... 38
On the Trail of the Human Wolf.... 39
Congress and Cotton.... 39
New Orleans View of Cotton Prices.... 39
Trade Prospects in the Cotton Belt.... 40
Railroad Movement at New Orleans.... 41
Improvement in Iron Market.... 42
Danger of Car Shortage.... 42
In the Birmingham District.... 42
Another Southern Resort (Illus.).... 43
FOREIGN TRADE:
Irrigation in Brazil.... 43
Trade With Roumania.... 44
Trade With Havana.... 44
RAILROADS:
To the Atlantic Seaboard.... 44
To Attract Immigrants.... 44
Many Railroad Contracts.... 44
Proposed Texas Line.... 44
Gould and Gulf Exports.... 44
Bettering Its Facilities.... 44
Railroad Notes.... 44
TEXTILES:
Planning a Cotton Mill.... 45
Wool Clip in Texas.... 45
Company's Fourth Mill.... 45
Pacolet Mills.... 45
Cord and Twine Factory.... 45
Wants a Cotton Mill.... 45
Lane Mills' Contracts.... 45
A New Company Formed.... 45
Textile Notes.... 45
Cottonseed-Oil Notes.... 45
For a Florida Refinery.... 46
PHOSPHATES:
Phosphate Markets.... 46
Phosphate and Fertilizer Notes.... 46
For a Rolling-Mill Site.... 46
LUMBER:
Lumber Market Reviews:
Baltimore.... 46
Charleston.... 46
Savannah.... 47
Brunswick.... 47
Mobile.... 47
Jacksonville.... 47
Lumber Notes.... 47
MECHANICAL:
Duplex Boiler-Feed Pump (Illus.).... 48
Automatic Rail Clamp (Illus.).... 48
Notes from Northern Machine Shops (Ill.) 48
Suggestion for Capitalists.... 48
CONSTRUCTION DEPARTMENT:
New Enterprises.... 49
Building Notes.... 52
Railroad Construction.... 53
Machinery Wanted.... 54
Trade Notes.... 55
Trade Literature.... 55
Gold in Carolina.... 56
FINANCIAL NEWS:
New National Banks.... 56
A New Publication.... 56
West Virginia Banks.... 36
New Corporations.... 36
New Securities.... 37
Financial Notes.... 37

Hambleton & Co.

BANKERS and BROKERS,

Members New York and Baltimore Stock Exchanges.

17 S. Calvert St., BALTIMORE.

High-grade Investment Bonds, Municipal, Railway, Industrial.

Letters of Credit Available Everywhere.

CONDENSED STATEMENT OF THE

First National Bank of Richmond, Va.

JUNE 9, 1903.

RESOURCES.	
Loans and Discounts	$3,551,733.73
U. S. Bonds at par	612,500.00
Overdrafts	40.75
Other Stocks and Bonds	413,607.78
Banking House and other Real Estate	60,742.73
Cash and Due from Banks	903,896.70
	$5,542,521.69
LIABILITIES.	
Capital	$600,000.00
Surplus and Profits (net)	552,240.66
Reserved for Interest	7,658.72
Circulation	593,500.00
Deposits	3,380,622.31
U. S. and Va. Bond Account	408,500.00
	$5,542,521.69

Calvin N. McAdoo

Banker and Broker,

GREENSBORO, N. C.

MEMBER

New York Cotton Exchange.
New Orleans Cotton Exchange.
Consolidated Stock Exchange.

Private Wires to all Exchanges.

Southern Securities a Specialty.

Jacob Phinizy, Prest. Chas. G. Goodrich, Cash.
Hamilton H. Hickman, Vice-Prest.

Georgia Railroad Bank,

AUGUSTA, PA.

Capital, $200,000.00 Undivided Profits, $201,585.63

Commenced Business December 31, 1892.

Merchants' & Farmers' Nat. Bank

CHARLOTTE, N. C.

Capital, $200,000. Surplus and Profits, $75,000.

Prompt and intelligent attention to all business intrusted to us. Correspondence invited.

Dr. J. H. McAden, Pres. Geo. E. Wilson, V. Pres
C. N. Evans, Cash. W. C. Wilkinson, Asst. Cash.
N. Y. Correspondent:
SEABOARD NATIONAL BANK.

Spencer Trask & Co.

BANKERS

William & Pine Sts., New York

Investment Securities.

Members New York Stock Exchange.
Branch Office, Albany, N. Y.

Savannah Trust Company,

13 Bay St., East, SAVANNAH, GA.

Capital, $500,000.

Executes trusts of every description.
Accepts deposits and allows interest on daily balances.
Collections promptly handled.

WM. W. MACKALL, President. GEO. J. BALDWIN, Vice-President.
WM. V. DAVIS, Secretary and Treasurer.

Members Baltimore Stock Exchange.

J. WM. MIDDENDORF & CO.

BANKERS AND BROKERS,

Continental Trust Bldg. Baltimore, Md.

Stocks and Bonds Bought and Sold on Commission. Special attention given to Municipal and other Investment Loans. Dealers in Foreign Exchange. Drafts on Europe and Letters of Credit furnished. Private Wire to New York and Richmond.

JOHN L. WILLIAMS & SONS,

BANKERS,

Dealers in **RICHMOND, VA.**

Southern Investment Securities

MUNICIPAL BONDS A SPECIALTY.
Correspondence Invited.

EDWARD H. THOMSON & SONS,

Bankers and Brokers,

10 South Street, BALTIMORE.

Members of Baltimore Stock Exchange.
Dealers in High-Class Securities.

Collateral Loans Negotiated.

MARYLAND TRUST CO.

N. W. Cor. Calvert and German Sts.

BALTIMORE.

CAPITAL, - - $2,125,000.00
SURPLUS, - - 2,437,500.00

A LEGAL DEPOSITORY FOR COURT AND TRUST FUNDS.
SAFE DEPOSIT BOXES FOR RENT.

Acts as Financial Agent for States, Cities, Towns, Railroads, and other Corporations. Transacts a General Trust Business. Lends money on approved security. Allows interest on special deposits. Acts as Trustee under Mortgages, Assignments and Deeds of Trust; as Agent for the Transfer or Registration of Stocks and Bonds and for the payment of coupons, interests and dividends.

J. WILLCOX BROWN, President.
HENRY J. BOWDOIN, First Vice-Pres.
LLOYD L. JACKSON, Second Vice-Pres.
ALLAN McLANE, Third Vice-Pres.
CARROLL VAN NESS, Sec. and Treas.
L. S. ZIMMERMAN, Asst. Sec. & Asst. Treas.

DIRECTORS.

J. Willcox Brown,	Henry Walters,
Wm. A. Marburg,	H. A. Parr,
Lloyd L. Jackson,	B. N. Baker,
Geo. A. von Lingen,	Andrew D. Jones,
H. J. Bowdoin,	James Bond,
Joshua Levering,	John A. Tompkins,
W. B. Brooks, Jr.,	Clayton C. Hall,
John S. Wilson,	Josiah L. Blackwell,
Fred'k W. Wood,	George C. Jenkins,
Seymour Mandelbaum,	John Pleasants,
Leopold Strouse,	L. F. Loree.
J. Southgate Lemmon,	

Hugh MacRae & Co.

Bankers,

MISCELLANEOUS SOUTHERN SECURITIES,

COTTON MILL STOCKS

WILMINGTON, N. C.

WASHINGTON, D. C., (Kellogg Building.

International Trust Company

OF MARYLAND,

BALTIMORE.

Capital, $2,000,000.00
Surplus, $1,515,772.74

Deposits subject to check received in our Banking Department and interest allowed on average daily balances.

Special rates of interest allowed on deposits for a specified period of three months or longer.

Write for further particulars.

4 % Certificates of Deposit.

Due March 1, 1908.
Interest payable quarterly.

Coupon Certificates of $1000 each.

The above certificates are engraved, in coupon form, issued to bearer, with provision for registration of Principal, in denominations of $1000 each, interest at four per cent. per annum, payable March, June, September and December

The holder of these certificates, by giving sixty days' notice in writing, can obtain payment of principal on any interest date.

ISSUED BY

The Continental Trust Co.

BALTIMORE.

Capital and Surplus, $5,340,000.

Interest paid on deposits subject to check.

Largest Capital of Any Bank or Trust Company in the South Atlantic States.

RICHMOND TRUST

AND

SAFE DEPOSIT COMPANY.

N. W. Corner 10th and Main Streets. RICHMOND, VA.

CAPITAL, $1,000,000

Does a general Trust Company business. Acts in all Fiduciary capacities. Receives deposits and allows interest thereon.

President, - - JOHN SKELTON WILLIAMS,
Vice-Presidents, - { JAMES H. DOOLEY, HENRY L. CABELL,
Treasurer, - - LEWIS D. CRENSHAW, JR.

CORRESPONDENCE INVITED.

American

MANILA-SISAL-JUTE CORDAGE

THE AMERICAN MFG. CO., 65 Wall Street, New York, makes everything in this line from a small India Twine to an 18" Turned Hawser. They are the largest fibre workers in the world.

"American" Transmission Rope, 2" dia., coils 2500 ft. long without splice.

"AMERICAN" TRANSMISSION ROPE

is standard

Every Mill Owner, Superintendent and Engineer should have a copy of "A Little Blue Book on Rope Transmission." A postal card will bring it

Rope

West Virginia Banks.

Mr. M. A. Kendall, State bank examiner of West Virginia, is quoted as stating that during the past twelve months the number of State banks in the State had increased from 112 to 113, their capital stock from $5,119,636 to $6,929,683, their surplus and undivided profits from $2,758,867 to $3,943,455, and their deposits from $31,017,267 to $37,220,855. He said that the total aggregate business of the banks in the State in 1890 was not equal to the increase in the business shown in the past twelve months, and that in addition to the 131 State banks in operation on the 9th of June last, twelve more were in organization, while new charters are being taken out every few days.

New Corporations.

The People's Bank, capital $20,000, is reported in process of organization at Bishopville, S. C.

It is reported that a new trust company may be organized at Savannah, Ga., by New York capital.

Atkins, Ark., may have a bank, as it is reported that A. J. McCullom, president of the Clinton bank, is there organizing one.

Bank of Central of Central, S. C., will be organized, with capital of $25,000, by B. J. Johnson, C. B. Smith and J. F. and F. B. Mauldin.

The Staunton National Bank of Staunton, Va., has been authorized to begin business; capital $100,000; B. E. Vaughan, president; G. G. Child, cashier.

Bank of Grundy, Grundy, Va., has been incorporated, with $50,000 capital, by J. H. Stenson, W. L. Dennis, W. McGlothlin, John A. Lomey and George Bart Belcher.

The Bank of Willard, Carter county, Kentucky, has been incorporated, with $15,000 capital, by J. W. Hunter and J. M. Webb of Willard and O. H. Burley of Olive Hill.

Penny Savings Bank of Pine Bluff, Ark., is being organized with capital of $10,000; W. H. Langford, president; W.

Beaumont Trust Co.

Beaumont, Texas.

BRANCH OFFICES:
NEW YORK, 22 Pine St., Jason C. Moore, Mgr.
LONDON, ENG., 159 Cannon St., Thos. C. Hallamore, Mgr.

S. W. THOMPSON, President
J. H. BAILEY, Vice-President
I. D. BARTON, Vice-President
HON. R. C. DUFF, Vice-President
JASON C. MOORE, Treasurer
HORACE H. LANEY, Secretary
ALFRED H. EVANS, Asst. Sec'y

Does a General Trust Company, Fiduciary and Banking Business, and has special facilities, both here and abroad, for handling Railroad and all other Good Securities. Executes trusts of every description, and acts as fiscal agents and registrars for approved companies.

FOR SALE.

State of Georgia Registered Bonds.

$1000 4½%, due January, 1906; $1000 4½%, due January, 1908; $7000 4½%, due January, 1909; $8000 4½%, due July, 1915; $5000 3½%, due January, 1933; $5000 3½%, due January, 1934.
Price on application.

MARTIN & BRO., Augusta, Georgia.

Established 1835.

The Merchants National Bank,

BALTIMORE, MD.

DOUGLAS H. THOMAS, President.
WM. INGLE, Cash. J. C. WANDS, Asst. Cash.

Capital, $1,500,000.
Surplus and Profits, - - $893,000.
Deposits, $10,150,000.

Accounts of Banks, Bankers, Corporations and Individuals solicited. We invite correspondence.

Hibernia Bank & Trust Co.

New Orleans, La.

Capital $1,000,000 Surplus $2,000,000
Deposits $12,000,000

Transacts a general Trust and Banking business, offering every facility to Banks, Bankers and Corporations that their balances and responsibility warrant.
Foreign Exchange bought and sold.
Collections made on all points in the South.
Acts as Trustee under corporate mortgages for railroads and other corporations and as Registrar and Transfer Agent for stock.
High grade investment bonds bought and sold.

OFFICERS:
J. W. CASTLES, President.
G. R. WESTFELDT, Vice President.
JNO. J. GANNON, Vice President.
CHARLES PALFREY, Cashier.
GEORGE FERRIER, Assistant Cashier.
P. L. GIRAULT, Assistant Cashier.
L. M. POOL, Assistant Cashier.
WYATT H. INGRAM, JR., Trust Officer.

Hugh C. Risdon,

Industries Located, Organized and Financed.

P. O. Box 601, Norfolk, Va.
P. O. Box 110, Washington, D. C.

Southern Towns: If your town wants industries and can offer some capital, free sites or other inducements we will give you practical assistance and advice in locating industries with you.
Manufacturers: If you desire a change of location where better facilities with some assistance will be given you we can place you advantageously.
We have no interests to serve save yours. Write us your wants and needs.

INCORPORATE

Under a United States Law,

thus insuring respect and dignity throughout the world. No incorporation fee; no annual tax. Information furnished by

The District of Columbia Charter Co.

Columbian Bldg., Washington, D. C.

References by permission:
Central Natl. Bank, Natl. Capital Bank and James L. Norris, Patent Solicitor, Washington, D. C.

The Exchange Bank,

MACON, GA.

J. W. CABANISS, Pres. C. M. ORR, Cash.
W. H. BURDICK, Asst. Cash.
Capital, - - - - $500,000.00
Surplus and Undivided Profits, 131,028.69

Best facilities for making Collections at lowest rates. Correspondence invited.

PALMETTO BANK & TRUST CO.

COLUMBIA, S. C.
CAPITAL $250,000.

GENERAL BANKING BUSINESS TRANSACTED.

In the heart of the great cotton mill development of the South, our services are offered to investigate securities and enterprises.
High class securities offered for sale.

Companies Organized Under Corporation Laws of Delaware.

The Laws furnish, at least expense, ample rights to stockholders, with minimum restriction upon corporate action. Charters perpetual, not subject to repeal by the Legislature. Copy of the Law, Blank Forms and Estimate of Expenses furnished by

DELAWARE CORPORATION CO.
926 Market Street, WILMINGTON, DEL.

MOTTU, DeWITT & CO.

Southern Investments,

NORFOLK, VA.

Correspondence Invited.

FISK & ROBINSON

BANKERS

Government Bonds
and other
Investment Securities

MEMBERS NEW YORK STOCK EXCHANGE

35 CEDAR STREET, NEW YORK — 28 STATE STREET, BOSTON

Proctor & Gamble Stocks,
Cumberland Telephone Stock,
Lackawanna Coal & Iron Stock,
Rochester (N. Y.) Ry. 1st 5s,
Equitable Life Assurance Stock,
Swift & Co. 1st 5s,
Eastman Kodak Stocks,
American Writing Paper Stocks,
Ches. & Ohio Grain El. 1st 4s,
L'ville, Hend. & St. L. Common,

DEALT IN.

TOBEY & KIRK,

25 Broad St., New York.

Established 1873.

J. Wm. Middendorf, Pres. A. H. Rutherfoord, Treas.
R. L. Williams, Vice-Pres.
Howard P. Page, Sec. and Auditor.
E. L. Bemiss, General Manager,
Office of Gen. Mgr., Richmond, Va.

Railways & Light Co. of America,

EXECUTIVE OFFICES:
CONTINENTAL TRUST BUILDING,
BALTIMORE, MD.

Finances, Builds, Purchases Electric Railways, Electric Lighting Properties, Waterworks, Ice Plants, Etc. Examinations made and reports furnished on all classes of industrial properties.

CORRESPONDENCE SOLICITED.

WHEN ABOUT TO

INCORPORATE

Write for "POINTERS on DELAWARE CORPORATIONS."

DELAWARE TRUST COMPANY

9th and Market Sts.,
WILMINGTON, DELAWARE.

HENRY W. THOMSON,

Spartanburg, S. C.

STOCK AND BOND BROKER,

Southern Cotton-Mill Stocks a Specialty.
CORRESPONDENCE SOLICITED.

J. P. HORNADAY & CO.

Electric Railway, Water Works, Light, Traction, Industrial and Mineral Properties and Securities Bought and Sold.

Suite No. 1108 Traction Bldg. CINCINNATI.

SURETY BONDS.

Fidelity and Deposit Co.

OF MARYLAND.

Home Office, - BALTIMORE, MD.

Assets Over $5,000,000.

Pioneer Surety Co. of the South.
Becomes Surety on Bonds of every description.

AGENTS IN ALL PRINCIPAL CITIES.

HARRY NICODEMUS, Sec'y and Treas. EDWIN WARFIELD, President.

Guaranteed Storage Receipts Issued

For property stored on your own premises or in Public Warehouses. Also for Property stored in the warehouses of this Company.
All Receipts GUARANTEED by the FIDELITY & DEPOSIT CO. of Md
A HIGH CLASS COLLATERAL--Accepted in all money markets.

Baltimore Fidelity Warehouse Co.

BALTIMORE, MARYLAND.

ALBERT G. OBER, President.
T. E. WITTERS, Sec'y. & Mgr.
THOS. L. BERRY, Treasurer

AGENCIES:
Equitable Trust Company, Augusta, Ga.
American Trust & Banking Co., Atlanta, Ga.
Other agencies will be established where needed.
Correspondence Solicited.

APPRAISAL & AUDIT CO. OF AMERICA.

Teutonic Bldg., CHICAGO.

Audits and Examinations of Books and Accounts. Deviser of Successful Accounting Systems. Appraisers of all classes of Property. Plans and Specifications of Buildings and Machinery. Send 10c. in stamps for book, "SYSTEM OF APPRAISAL & AUDIT."

WE FINANCE AND BUILD

Electric Railways, Power Stations, Water Powers, etc., etc.

WE BUY

Railway Charters and Franchises, ALSO Small Issues of Railway, Mining and Industrial Bonds.

Correspondence Solicited.

The Mechanics Electric Co.

P. O. Box 1157. 170 Summer St., BOSTON, MASS.

THE AUDIT COMPANY OF NEW YORK

EXAMINATIONS. APPRAISALS. AUDITS.

Investigations for Financing and Underwriting and for Reorganization Committees.

New York,
Mutual Life Buildings, 43 Cedar Street.

Chicago, New York Life Building. Philadelphia, Arcade Building.

Yowell Westbrook, vice-president, and A. Breck Niven, cashier.

The Toano Bank at Toano, Va., has elected Miss Hannah Wilkinson to be cashier. The bank will begin business in a new building, which is to be completed by August 15.

Seaboard Fire Insurance Co. of Alexandria, Va., has been incorporated, with capital of $200,000, by Charles R. Adams, Edward E. Seeler, Isaac H. Rawley and I. Morton Adams.

Merchants and Farmers' Bank of Atkins, Ark., has been organized, with J. H. Bost, president; W. H. Montgomery, vice-president; H. J. McCollum, cashier, and capital stock of $15,000.

Applications have been approved to organize the Planters' National Bank of Whitewright, Texas., with capital of $100,000, and the First National Bank of Perry, O. T., with capital of $50,000.

Lake County Bank of Chattanooga, Tenn., has been granted a charter with $20,000 capital stock. The incorporators are Judge Harris, P. Davis, J. P. Alexander, D. W. Hubbs and Bessie Harris.

Dairymen's Bank, recently organized at Carlisle, Ark., with capital of $25,000, opened for business on July 30. M. A. Thompson is president; B. D. Muzzy, vice-president, and Homer Black, cashier.

Bank of Appalachia of Keystone, O. T., has been incorporated with $10,000 capital. The incorporators are B. Cooley and O. T. Street of Galena, C. P. Obsurne of Keystone, J. W. Beswell and W. S. Bemley of Sinnett.

The Fairmont Fraternal Insurance Co. Association is reported chartered at Fairmont, W. Va., with $100,000 capital, by Preston Crowell, L. B. Burk, H. G. Greer, C. C. Bowman and B. F. Williams, all of Fairmont.

The stockholders of the Bank of Amite City, La., have decided to increase its capital to $100,000 and to change the name to the Amite Bank & Trust Co. There will be a branch at Tangipahoa, and possibly another at Independence.

Florin Cox, Arthur G. Langham, Edward J. Watkins, J. V. Reed, E. B. Clark, J. M. Atherton, John J. McKenny and others have incorporated the Star Fire Insurance Co. of Louisville, Ky., with a capital stock of $200,000.

State Bank of Little Rock, Ark., has been authorized to begin business as the State National Bank, with paid-up capital of $100,000. J. E. England is president; Edward Cornish, vice-president, and R. S. Hamilton, cashier.

Security Trust & Investment Co. of South McAlester, I. T., has been incorporated with capital stock of $25,000. H. H. Kirkpatrick, E. E. McIntosh, E. C. Young, A. Thomas, W. H. Fuller and Arthur Devlin are the directors.

The Fidelity Investment Co. has been incorporated at Savannah, Ga., with $4000 capital, by A. Mohr, Joseph Ferst, Joseph W. Jackson, Max L. Byck, A. L. Weil, A. J. Merkle, Edwin Frank, G. A. Gregory, Henry Meinhard and Edward B. Fitzgerald.

C. T. McCraw, J. T. Karney and C. L. Taylor of Mason, Tenn.; George T. Webb of Whiteville, Tenn.; G. T. Albright and M. T. Williams of Stanton, Tenn., and John Cunningham of Galloway, Tenn., will charter the Bank of Mason with capital of $10,000.

E. B. Craig is organizing the Volunteer State Life Insurance Co., to have a capital stock of $200,000, with $50,000 surplus, the full amount of the capital to be paid in. The company's headquarters will be at Chattanooga, Tenn. Z. C. Patten will be president; J. Fred Ferger, treasurer, and E. B. Craig, general manager.

The Grant County Bank of Sheridan, Ark., has been incorporated, with $15,000 capital, by R. H. Allen, V. C. Ashcraft, J. M. Nall, Dan J. Taylor, J. N. Mengia, J. L. Butler, W. D. McDonald, J. B. Shaw, Henry Bales, John M. Shaw, S. R. Adams, W. C. C. Dorough, Sheridan Stave Co., J. T. H. Wilson, W. D. Brouse, J. P. Shepherd, W. J. Nixon, Mrs. D. E. Nixon, John R. Hampton, J. E. Hampton, Jr., J. E. Hampton, Sr., Charles McKee, A. J. Wilson, Jr., A. B. Banks, W. D. Reese, N. C. Richardson, Alvin Rowland, J. G. Brown, Robert Thomas.

New Securities.

Belton, Texas.—City has voted $7000 in bonds for school purposes. Address "The Mayor."

El Paso, Texas.—The city is receiving bids for school and sewer bonds, which are to be sold to the highest bidder on September 10.

Abbeville, S. C.—An election will be held in Abbeville on August 5 upon the question of issuing $20,000 of 5 per cent. bonds for sewers.

The Carolina & Western Railroad is reported to have filed a mortgage to secure $2,500,000 of bonds to provide for the proposed extension and other improvements.

Pensacola, Fla.—City will arrange for an early issuance of the $750,000 worth of public improvement bonds voted at the recent election. Bonds will be issued in denominations of $100, $500 and $1000. Address "Board of Bond Trustees."

Financial Notes.

The Fountain Hotel Co. of Baltimore, Md., has directed the payment in cash of the last of an issue of $50,000 of second mortgage bonds.

Atlanta, Ga.—The house of representatives has passed the amendment to Atlanta's charter providing for the issue of $400,000 for public improvements recently voted. Address "The Mayor."

Albemarle & Chesapeake Canal Co. of Norfolk, Va., has made a deed of trust on its property to secure the payment of $115,000 to the Central Trust Co. of New York. The mortgage is for three years at 6 per cent.

The State of Maryland has purchased for the sinking fund $200,000, the last of a 3 per cent. loan amounting to a total of $600,000. The purchase was distributed to provide for meeting various loans of the State at their maturity.

The First National Bank of South Boston, Va., reports at the close of business June 9: Deposits, $97,866.35; bills discounted, $92,038.65; capital $25,000, with surplus and undivided profits of $3437.39. R. H. Edmondson is president, and H. J. Watkins, Jr., cashier.

A dispatch from Guthrie, O. T., says that the law passed by the recent legislature preventing banks organizing with less than $10,000 capital stock, has practically shut off the frequent organization of State banks for the present. The legislature feared too many small capitalized institutions would prove injurious in the long run.

Niagara Falls Excursions—Low-Rate Vacation Trips via Pennsylvania Railroad.

The Pennsylvania Railroad Co. has selected the following dates for its popular 10-day excursions to Niagara Falls from Baltimore: July 24, August 7 and 21, September 4 and 18, and October 2 and 16. On these dates the special train will leave Baltimore 9.05 A. M., York 10.45 A. M., arriving Niagara Falls at 9.45 P. M.

Excursion tickets, good for return passage on any regular train, exclusive of limited express trains, within ten days, will be sold at $10 from Baltimore, $9.35 from York, $10 from Littlestown, and at proportionate rates from principal points. A stop-over will be allowed at Buffalo within limit of ticket returning.

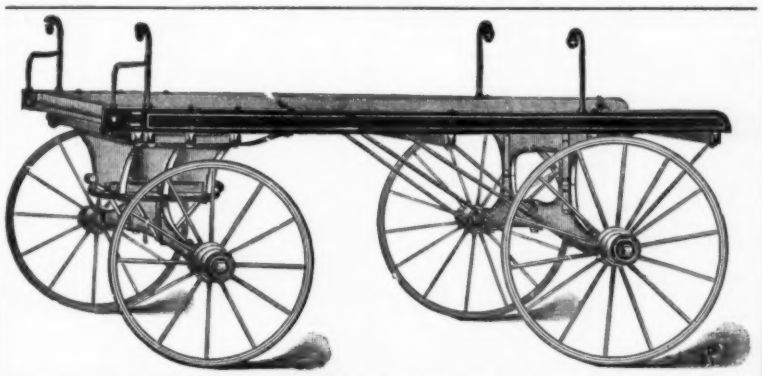
The special trains of Pullman parlor cars and day coaches will be run with each excursion running through to Niagara Falls. An extra charge will be made for parlor-car seats.

An experienced tourist agent and chaperon will accompany each excursion.

For descriptive pamphlet, time of connecting trains and further information apply to nearest ticket agent, or address Geo. W. Boyd, general passenger agent, Broad Street Station, Philadelphia. †

Reduced Rates to San Francisco and Los Angeles via Pennsylvania Railroad, Account National Encampment, G. A. R.

On account of the National Encampment, G. A. R., at San Francisco, Cal., August 17 to 22, 1903, the Pennsylvania Railroad Co. will sell excursion tickets to San Francisco or Los Angeles from all stations on its lines, from July 31 to August 13, inclusive, at greatly reduced rates. These tickets will be good for return passage to reach original starting-point not later than October 15, inclusive, when executed by joint agent at Los Angeles or San Francisco and payment of 50 cents made for this service. For specific information regarding rates and routes, apply to ticket agents. †



THIS DRAY WE RECOMMEND FOR MERCHANTS,
COTTON MILLS OR WAREHOUSES.
MADE OF BEST SEASONED HICKORY AND OAK. PRICE LOW.
Write for Price List and Catalogue.
W. P. HORNER WAGON MANUFACTURING CO.
DANVILLE, VA.

OLD DOMINION HORSE SHOES.
Cut Nails of Superior Quality of Iron and Steel.
Bolts, Refined Bar Iron.
GRANITE CRUSHED TO ORDER FOR CONCRETE PURPOSES.
OLD DOMINION IRON & NAIL WORKS CO.
RICHMOND, VA.

THE UNIVERSITY
School for Boys,
1205 Cathedral St., Baltimore, Md.
(INCORPORATED).
W. S. MARSTON, A. B. & C. E., Prin'l.
23d Year Began Thursday, Sept. 25th.

The most fully-equipped Day School for Boys in the South. Primary, Junior and Senior Sections. In the Primary Section, in which the number is limited to 30, boys are taken as young as seven. In June of last year the school had successful candidates for admission to the Johns Hopkins, Harvard, Princeton, The Massachusetts Institute of Technology, Lehigh University and Haverford College.
There is a large and fully-equipped Gymnasium Play Ground, Library and Reading Room. The buildings are the best lighted and ventilated of any in Baltimore.
Catalogues at the Johns Hopkins and at the book stores. For further information address the Principal at 1205 Cathedral St., or apply at the school.

BOARDING PUPILS.
A limited number of Boarding Pupils will be taken into the families of the teachers, where they will receive all the care and attention of home life.

Patterns in Wood and Metal.
THE
Richmond Pattern Works
305, 307, 309, 311, 313 North 18th St.
RICHMOND, VA., U. S. A.
Ornamental and Machinery Patterns of all kinds; Marine Patterns a Specialty.
Practical Construction Guaranteed.
IRON AND BRASS CASTINGS
OF EVERY DESCRIPTION.

FREE USE
OF
Manufacturing Building
given bona fide enterprise with one hundred employees.
Shipping facilities by railroad and river.
State business and if now operating.
Box 186, Uniontown, Pa.

FOR SALE.
Davis Calyx Drill,
Class F, with appurtenances and 10 H. P. locomotive type Boiler on wheels, to run drill.
This drill has a capacity of 600 feet, and bores a 4″ hole, 3″ core. 306 feet of drill rods with drill. Also, 131 feet of 5″ extra black pipe for casing, with drive head and shoe. Has been in use about ten months, with best of care. This drill is used for exploiting for minerals, and for driven wells.
R. L. MURRAY, Waynesville, N. C.

FOR SALE.
Pine Timber Land in Louisiana.
25,000 acres longleaf pine, Calcasieu parish. Will cut 12,000 to 15,000 feet per acre. On railroads.
20,000 acres shortleaf pine. Natchitoches parish. On railroad. Will cut 6000 to 8000 feet.
60,000,000 feet shortleaf pine (land and hardwood thrown in). Webster parish, 5 miles from railroad.
Buyers address for plats and prices,
JOS. R. PUTNAM, Portland Block, Chicago.

We have FOR SALE at
CROWN POINT, N. Y.
1 Smoke Stack, 8′ diameter, 130′ high, self supporting.
3 Hartman Stoves, complete, 66′x16′.
3 Hartman Stoves, complete, 46′x15′.
1 9″x15″ Farrell Stone Crusher.
16 Cylinder Boilers, 36′x41″.
Air Tanks and Receivers from blowing engine.
HENRY A. HITNER'S SONS,
Huntingdon St. and Aramingo Ave., Philadelphia.

THORNHILL WAGON CO.,
At Lynchburg, Va., have for sale a 35 horse power Engine, in good condition, second hand. Will sell cheap.

ALPHABETICAL INDEX OF ADVERTISERS.

For Classified Index See Pages 3, 5, 7, 9, 11, 13, 15 and 17.

Ads. marked * appear every other week. Ads. marked † appear in first issue of the month. Ads. marked ‡ not in this issue.

A

Abbott, F. C., & Co ... 40
Abrasive Material Co ... 48
Adams, J. M ... 9
Adams Laundry Machinery Co ... 2
Adams & Schwab ... 6
Acme Road Machinery Co ... 51
Aitchison, Robt., Perf. Met. Co ... 53
Alabama Con. Coal & Iron Co ... 65
Alabama Frog & Switch Co ... 44
Alber & Bryne ... 7
Alberger Condenser Co ... 66
Aldrich, F. B ... 63
Alexander Bros ... 28
Alexander, S. B., Jr., Co ... 71
Allington & Curtis Mfg. Co ... 72
Allis-Chalmers Co ... 14, 33
Alpha Photo-Engraving Co ... 63
American ... 63
American Air Compressor Wks ... 50
American Blower Co ... 15
American Cement Co ... 8
American Cotton Oil Co ... 64
American Diam'd Rock Drill Co ... 51
American Elec. Sup. & Mfg. Co ... 42
American Excelsior & Mch. Co ... 47
American Frog & Switch Co ... 13
American Locomotive Co ... 13
American Machine Co ... 26
American Machine Co. of Wilmington, Del ... 66
American Mfg. Co ... 35
American Pulley Co ... 30
American Railway Supply Co ... 4
American Roofing Co ... 59
American Sheet Steel Co ... 34
American Ship Windlass Co ... 72
American Spiral Pipe Works ... 67
American Steam Gauge & Valve Mfg. Co ... 19
American Steam Pump Co ... 66
American Supply Co ... 63
American Tin Plate Co ... 58
American Type Founders Co ... 63
Andrews & Johnson Co ... 21
Andrews, Perry, & Bro ... 66
Apex Equipment Co ... 45
Appraisal & Audit Co. of Amer ... 38
Arctic Machine Co ... *
Armitage Mfg. Co ... 59
Armstrong, R. S., & Bro ... 45
Asphalt Ready Roofing Co ... 59
Athens Chamber of Commerce ... 68
Atherton Machine Co., A. T ... 61
Atkins, E. C., & Co ... 47
Atlas Engine Works ... 16
Audit Co. of New York ... 38
Aultman Co., The ... 26
Austin Mfg. Co ... 50
Avery, Charles F ... 45

B

Babcock & Wilcox Co ... 19
Bacon Air Lift Co ... 60
Badger, E. B., & Sons Co ... ‡
Badger Fire Extinguisher Co ... 62
Baeder, Adamson & Co ... 32
Bailey-Lebby Co ... 24
Bailey, John T., & Co ... 9
Baird, Machinery Co ... 34
Baker, H. C., & Co ... 41
Baker, Stillwell & Hart ... 44
Baldwin Locomotive Works ... 13
Ball Engine Co ... 17
Ball & Wood Co ... *
Ballinger, J. I ... 39
Baltimore Belting Co ... 28
Balto. Fidelity Warehouse Co ... 36
Baltimore-Maryland Engrav. Co ... 70
Balt. Shipbldg. & Dry Dock Co ... 72
Baltimore Steam Packet Co ... 69
Barber, A. H., Mfg. Co ... 22
Barnes, W. F. & John, Co ... 25
Barnett, G. & H., Co ... 72
Barr & Elam ... 6
Barrett Mfg. Co ... 34, 56
Bartlett, C. O., & Snow Co ... *
Bates', James, Sons ... 26
Bates Machine Co ... 18
Baush Machine Tool Co ... 10
Beach, H. W ... 47
Beaumont Trust Co ... 36
Beckley, A. J., Co ... 52
Belmont Iron Works ... 58
Bennett, G. L ... 42
Bertsch & Co ... 24
Bickford Drill & Tool Co ... 24
"Big Four" ... ‡
Bird, F. W., & Son ... 57
Bird, J. A. & W., & Co ... 58, 59
Bird, Wm. M., & Co ... 8
Birmingham Boiler Works ... 23
Birmingham Rail & Loc. Co ... 44
Bissell Co., F ... 42
Blacksburg Business Mens Leag ... 68
Blakely, A. R., & Co., Ltd ... ‡
Blazeslee Mfg. Co ... 17
Blanke, Ewald G ... 6
Blythe, Richard A ... 39
Boggs, J. H ... 49
Bolles, J. E., Iron & Wire Wks ... 65
Boomer & Boschert Press Co ... 39
Boston & Maine Railroad ... ‡
Boston Belting Co ... 29
Bourne-Fuller Co ... 39
Bourne, The ... 72
Bowen & Street Equipment Co ... 41
Bowser, E. H ... 49
Box 146 ... 37
Box L ... 44
Braden, Jas. S ... 42
Bradley Pulverizer Co ... 51
Brennan, P. C ... 6
Brim, A. W ... 4
Brinkley Business Men's League ... 68
Broboston, Fendig & Co ... 40
Broderick & Bascom Rope Co ... 54
Brown, A. & F., Co ... 30
Brown & Zortman Mchy. Co ... 42
Brown-Cochran Co., The ... 22
Brown Corliss Engine Co ... 18
Brownell, The, & Co ... 15
Buchanan-Foster Co ... 59
Buckeye Iron & Brass Works ... 61
Buckingham, Paulson & Co ... 39
Buer, P. W ... 40
Buffalo Wire Works Co ... 54
Burrowes Co., E. T ... 55
Burt Mfg. Co ... 3
Bushnell, G. H., Press Co ... 63
Byers, John F., Machine Co ... 12

C

Caine & Plitt ... 44
Caldwell, H. W., & Son Co ... 4
Caldwell, W. E., Co ... 30, 32
Cameron, A. S., S. Pump Wks ... 66
Cameron & Barkley Co ... 41
Campell & Clute Machine Co ... 62
Capital Gas Engine Co ... 17
Carbondale Chemical Co ... 23
Carborundum Co ... 48
Cardwell Machine Co ... 63
Carey, George H ... 44
Carey, Philip, Mfg. Co ... 34, 57
Carlin Machinery & Supply Co ... 42
Carnell, George ... 52
Carolina Portland Cement Co ... 8
Carolina Portland Cement Co. (Ridgemont) ... 8
Caroline Iron Works ... 53
Carver Cotton Gin Co ... 61
Cary Spring Works ... 10
Case Mfg. Co ... 26
Casey, D. L., Machine Co ... 44
Castner, Curran & Bullitt ... 65
Catlett, Charles ... 6
Chase Pulley Co ... 29
Chattanooga Machinery Co ... 47
Chattannooga Paint Co ... 57
Chattanooga Roof. & Fdry Co ... 7
Chesapeake Iron Works ... 49, 57
Chesapeake Steamship Co ... 69
Chester Steel Castings Co ... 12
Chesterfield Mfg. Co ... 41
Chicago House Wrecking Co ... 43
Chillcott-Evans Chain Co ... 72
Cincinnati Milling Machine Co ... 25
Clark, Clarence E ... 49
Cleveland Belting & Mchy. Co ... 43
Cleveland & Buffalo Transit Co ... ‡
Climax Mfg. Co ... 12
Clyde Machine Works ... 41
Codd, E. J., Co ... 42
Coe Mfg. Co ... 46
Coil Clutch Mfg. Co ... 23
Cohoes Iron Foundry & Mch. Co ... 61
Collier & Brown ... 7
Collins Colliery Co ... 44
Columbia Refining Co ... 57
Columbia Supply Co ... 34
Columbian Cordage Co ... 63
Columbus Iron & Steel Co ... 44
Columbus Machine Co ... 17
Commercial Electric Co ... 71
Continental Gin Co ... 63
Continental Trust Co ... 35
Contractors' Equipment Co ... 41
Contractors' Plant Mfg. Co., Ltd ... 21
Contractors' Supply & Equip. Co ... 43
Cook's Adam, Sons ... 21
Cook Well Co ... 66
Cordesman, Meyer & Co ... 45
Cortright Metal Roofing Co ... 59
Cotton Oil & Fibre Co ... 64
Cox, Justice, Jr., & Co., Ltd ... 45
Cresson, Geo. V., Co ... 50
Crippen, H. D ... 51
Crocker-Wheeler Co ... 7
Crooked Fork Coal & Coke Co ... *
Crosby Steam Gage & Valve Co ... 5
Cumber'd Hyd. Cem. & Mfg Co ... 6
Cushing Co., The ... 49
Cutler Mfg. Co ... 7
Cypress Lumber Co ... 33, 44

D

Darnell, R. J ... 40
Dart, E. M., Manufacturing Co ... 30
Davis Coal & Coke Co ... 65
Davis, F. H., & Co ... 44
Davis Fdy. & Machine Works ... 67
Davis, G. M., & Son ... 2
Davis, O. W., & Co ... 45
Davis, W. F ... 42
Davis & Farnum Mfg. Co ... 41
Dawson, A. L., & Co ... 2
Dean Bros. Steam Pump Works ... 66
Dearborn Desk Co ... 49
Delaware Corporation Co ... 36
Delaware Trust Co ... 36
De Loach Mill Mfg. Co ... 47
Detroit & Buffalo Steamboat Co ... 60
Detroit Graphite Mfg. Co ... 24
Detroit Lubricator Co ... 21
Diamond Drill & Mch. Co ... *
Diamond Rock Sand Co ... 32
Diamond State Steel Co ... 10
Dimmick Pipe Co ... 67
District of Columbia Charter Co ... 36
Dixie Mfg. Co ... 21
Dixon, Jos., Crucible Co ... 53, 72
Dowman-Dozier Mfg. Co ... 51
Downey, C. A ... 39
Downie Pump Co ... 66
Drake Standard Machine Works ... 8
Draper Co ... 62
Driscoll, John T., & Co ... *
Dufur & Co ... 54
Dunn, Wm. J ... 41
Dunning, W. D ... 39
Durable Wire Rope Co ... 54
Dyer, D. H., & Son ... *
Dyke, A. P ... 40

E

Eastern Granite Roofing Co ... 59
Eclipse Machine Co ... 25
Edson Mfg. Co ... *
Eifort, J. B ... 40
Electrical Material Co ... 71
Electric Supply Co ... 70
Elyria Engine Co ... 17
Engineering Co. of America ... 6
Erie Pump & Engine Co ... 65
Eureka Fire Hose Co ... 28
Eureka Supply Co ... 55
Ewing-Merkle Electric Co ... 71
Exchange Bank, Macon Ga ... 36

F

Fairmount Machine Co ... 60
Farquhar, A. B., Co., Ltd ... 20
Faunt Le Roy & Co ... 28
Fay, J. A., & Egan Co ... 46
Federal Mfg. Co ... 13
Fernholtz Brick Mchy. Co ... 52
Fidelity & Deposit Co. of Md ... 36
Fidelity Machine & Metal Co ... 41
First Nat'l Bank of Richmond ... 35
Fishkill Landing Machine Co ... 16
Fisk & Robinson ... 36
Fitz-Hugh-Luther Co ... 45
Flint & Walling Mfg. Co ... 32
Florida Electric Co ... 70
Flory, S., Mfg. Co ... 23
Foos Mfg. Co ... 51
Force, Jno. P ... 7
Ford, Isaac H ... 67
Forman, Thomas, Co., Ltd ... 49
Fort Worth Board of Trade ... 68
Fosdick Machine Tool Co ... 29
Fostoria Fdy. & Mchy. Co ... *
Fox, M. Ewing, & Co ... *
Franks, J. E ... 45
Freese, E. M., & Co ... 52
French, Sam'l H., & Co ... 9
Frick Co ... 23
Frink & Hazen ... 7
Froehling & Robertson ... 6
Fuller, H. E., & Co ... 40

G

Gainesville Iron Works ... 48
Galena Signal Oil Co ... 34
Galt, John, & Sons ... 58
Gandy Belting Co ... 28
Garrett, C. S., & Son, Co ... 59
Gasser, Paul ... 6
Gem Mfg. Co ... 21
General Electric Co ... 70
General Fire Extinguisher Co ... 72
General Supply & Cons Co ... 6
Genuine Bangor Slate Co ... 12
Georgia Railroad Bank ... 35
Ga. Vitrified Brick & Clay Co ... 33
Gibbes, Jas. T., Art Gallery ... 39
Gibbes, W. H., & Co ... 21
Gilbert, C. M., & Co ... 8
Gilbreth, Frank B ... 6
Girard Boiler & Mfg. Co ... 32
Girard Machine & Tool Co ... 44
Glamorgan Pipe & Foundry Co ... 65
Golden's Foundry & Mach. Co ... 30
Graphite Lubricating Co ... 30
Greaves, Klusman & Co ... 24
Green Fuel Economizer Co ... 21
Greenwald, I. & E., Co ... 22
Guarantee Electric Co ... 41

H

Haines, Wm. S., Co ... 4
Hambleton & Co ... 35
Hamel, John J., & Co ... 41
Hammond Iron Works ... 32
Hanley, Wm ... 42
Hanson & Van Winkle Co ... 71
Hardie-Tynes Mfg. Co ... 15
Harper Machinery Co ... 44
Harrington & King Perf. Co ... 4
Harrisburg Fdy. & Mch. Works ... 15
Harry Bros. Co ... 32
Hartfelder-Garbutt Co ... 12
Hartford Steam Boiler Inspection & Insurance Co ... 21
Hartley's Boiler Works ... 17
Hartranft, Wm. G., Cement Co ... 8
Haubtman & Loeb Co., Ltd ... 40
Haven Elevator Co ... 20
Hays, John W ... 6
Hayward Co., The ... 23
Hazard Mfg. Co ... 53
Healy Ice Machine Co ... 23
Help Wanted ... 69
Hench & Dromgold Co ... 48
Hendrick Mfg. Co ... 52
Henry, Robert P ... 39
Hermance Machine Co ... *
Herschell, Spillman & Co ... 28
Hibernia Bank & Trust Co ... 36
Hicks Locomotive & Car Works ... 45
Hiertz, Theo., Metal Co ... ‡
Hill, Wm. E., & Co ... 48
Himmel, M. L., & Son ... 49
Hitner's, Henry A., Sons ... 37, 44
Hook, F. R ... 59
Hoopes & Townsend Co ... 12
Hornsday, J. P., & Co ... 36
Horner, W. P., Wagon Mfg. Co ... 37
Houston & Liggett ... 70
Houston, Stanwood & Gamble Co ... 16
Huennekes, H., & Co ... 3
Hughes Specialty Well Drill. Co ... 7
Hunt, C. W., Co ... 39
Huntington Mchy. & Supply Co ... 41
Huther Bros ... 48
Hutton Engineering Co ... 7
Hyde Bros. & Co ... 45

I

Imhauser, E., & Co ... 4
Incandescent Electric Light Manipulator Co ... 70
India Alkali Works ... 63
Ingersoll-Sergeant Drill Co ... 34
Internat'l Acheson Graphite Co ... 3
International Creosot. & Con. Co ... 49
International Mercantile Agency ... 49
International Sprinkler Co ... ‡
International Trust Co ... 35
Ironsides Co., The ... 19

J

Jackson Mfg. Co ... 52
Jeffrey Mfg. Co ... 26
Jenks, W. H ... 70
Jenkins Bros ... 72
Johnson, Charles F ... 44
Johnson, John, & Co ... 64
Johnston, J. M ... 42
Joseph, Isaac, Iron Co ... 45

K

Kaiser, A. V., & Co ... 41
Kaolin Mfg. Co ... 40
Kasper Oats Cleaner Co ... 52
Keasey Pulley Co ... 29
Keeler, K., Co ... 19
Keith, W. R ... 53
Kelley, Benj. F., & son ... 19
Kelley Island Lime & Transport Co ... 8
Kelly & Taneyhill Co ... 65
Kelly-Springfield Road Roller Co ... 51
Kennedy, L. E., & Co ... 42
Kentucky Electrical Co ... 70
Kilbourne & Jacobs Mfg. Co ... 2
Kilburn, Lincoln & Co ... 61
Kilby Locomotive & Mach. Wks ... 44
Kinkade & Liggett Co ... 26
Kinnear Mfg. Co ... 3
Kirby Lumber Co ... 49
Knox, George & Co ... 7
Kohn, J. W., & Co ... 44
Koppel, Arthur ... 53

L

Lafourche Progressive Union ... 68
Landis Tool Co ... 24
Lane Mfg. Co ... 47
Latrobe Steel & Coupler Co ... *
Latrobe Steel Co ... 13
Leffel, James, & Co ... 67
Leffler, Chas., & Co ... 24
Lehman, Charles T ... 41
Lewis, H. F., & Co., Ltd ... 32
Lidgerwood Mfg. Co ... 23
Link-Belt Engineering Co ... 27
Lodge & Shipley Mach. Tool Co ... 42
Lombard Iron Wks. & Sup. Co ... 17
Lord, J. Couper ... 40
Louisville Elevator Co ... 27
Low, Edgar S., Co ... 44
Lowell Crayon Co ... *
Lowell Machine Shop ... 62
Lucas, J. C. M ... 41
Ludlow-Saylor Wire Co ... 55
Ludlow Valve Mfg. Co ... 21
Ludwig & Co ... 6
Lufkin Rule Co ... 2
Lunkenheimer Co ... 16, 19
Lyman, C. W., Sec'y Prog. Union ... 68
Lynchburg Traction & Lt. Co ... 68

M

MacAfee, J. B ... 6
Macleary, J. H., & Co ... 45
MacRae, Hugh, & Co ... 35
Main Belting Co ... 28
Main Jellico Mtn. Coal Co ... 65
Makepeace, C. R., & Co ... 6
Males Co ... 44
Mallory, J. D ... 41
Marion Steam Shovel Co ... 2
Martin & Bro ... 36
Maryland Casualty Co ... 19
Maryland Cement Co ... 9
Maryland Foundry & Mach. Co ... 26
Maryland Lime & Cement Co ... 8
Maryland Rail Co ... 45
Maryland Trust Co ... 35
Mason Machine Works ... 10
Maxfield, H. E., & Co ... 32
May & Spalding ... 44
Mayo Knit. Mch. & Needle Co ... 61
McAdoo, Calvin N ... 35
McAdoo, Thomas ... *
McCabe, J. J ... 24
McCarthy, P. A ... 6
McClave-Brooks Co ... 21
McClave, Hamilton & Co ... 31
McDonald Bros ... 72
McGowan, John H., & Co ... 16
McIntire, P. C., & Co ... 28
McKenna, David ... 59
McKiernan Drill Co ... 51
McLanahan-Stone Machine Co ... 59
McMichael & Hunter ... 6
McMichael & Wildman Mfg. Co ... 62
McMillan Bros. Co ... 33
McWilliams, Jos., & Co ... 6
Means & Fulton Iron Works ... 17
Mechanics' Electric Co ... 36
Mecklenburg Iron Works ... 16
Meier's, Joseph, Sons ... 28
Mengel's Machinery Exchange ... 41
Merchant & Co., Inc ... 55
Merchants' Nat. Bank of Balto ... 36
Merchants' & Farmers' Nat. Bk ... 35
Merchants' & Miners' Trans. Co ... 69
Meyers, The Fred. J., Mfg. Co ... 52
M. F ... 42
Middendorf, J. Wm., & Co ... 35
Middleton, J. W ... 2
Milburn, Frank P ... 6
Miller Oil & Supply Co ... 20, 44
Milton Mfg. Co ... 16
Mitcham & Beach ... 6
Mobile Coal Co ... 65
Monarch Emery & Cor. Wheel Co ... 48
Monitor Steam Generator Mfg. Co ... 19
Montross Shingle Co ... 59
Moore, A. T ... 40
Morse Twist Drill & Mch. Co ... 12
Morse, Williams & Co ... 27
Moshannon Mfg. Co ... 25
Mottu, DeWitt & Co ... 35
Moyer, J. W., & Co ... 71
Mundt, Charles, & Sons ... 52
Municipal Eng. & Con. Co ... 8
Murray Iron Works Co ... 17
Murray, R. L ... 37
Myers, F. E., & Bro ... 65
Myers, Finney & Morrison ... 6
Myers' Printing House ... 34

N

Nanz, B., & Co ... 4
National Pipe Bending Co ... 19
Nat'l Raw Hide & Belting Co ... 29
National Roofing & Supply Co ... 59
National Seal Works ... 34
Newhall, Henry B ... 26
N. J. Car Spring & Rub. Co ... 29
N. J. Foundry & Mach. Co ... *
N. Jersey Wire Cloth Co ... 55
N. J. Zinc Co ... 55
Newport News Shipbuilding & Dry Dock Co ... 2
New York Equipment Co ... 45
New York & Ohio Co ... 70
Niagara Hydraulic Engine Co ... 67
Niagara Mach. & Tool Works ... *
Nicol, T. W ... *
Nicholson File Co ... 34
Niles-Bement-Pond Co ... ‡
Niver, W. K., Coal Co ... 65
Nordyke & Marmon Co ... 2
Norfolk & Western Railway ... 69
Norman & Evans ... 28
Norrish, Burnham & Co., Inc ... *
North American Metaline Co ... 30
North Carolina Cotton Oil Co ... 40
Northern Electrical Mfg. Co ... 5
Norton Emery Wheel Co ... 9
Nye & Tredick ... 60

O

Ober Mfg. Co ... 48
Obermayer, S., Co ... 5
Ohio Fire Brick Co ... 8
Ohio Injector Co ... 20
Old Dominion Iron & Nail Wks. Co ... 37
Old Dominion Land Co ... 72
Oneida Steel Pulley Co ... 29
Osborn Engineering Co ... 7
Osgood Scale Co ... 72
Otis Elevator Co ... 27
Otto Gas Engine Works ... *

P

Palmer, Harmon S., Hollow Concrete Building Block Co ... 10
Palmetto Bank & Trust Co ... 36
Park Mfg. Co ... 26
Parkhurst Bros. & Co ... 28
Pawling & Harnischfeger ... *
Peacock Iron Works ... 51
Pearson, R. P ... 40
Peck-Hammond Co ... *
Peerless Rubber Mfg Co ... 31
Penberthy Injector Co ... 72
Penn Metal Ceiling & Roof. Co ... 55
Perfection Mattress Co ... *
Peters Cartridge Co ... 65
Petroleum Iron Works Co ... 32
Phoenix Iron Works Co ... 15
Phos. Bronze Smelting Co., Ltd ... *
Piedmont Electric Co ... 70
Pike Mfg. Co ... 46
Pittsburg Meter Co ... 59
Pittsburgh Reduction Co ... 34
Pittsburg Writing Machine Co ... 68
Pneumatic Engineering Co ... 67
P. O. Box 70 ... 40
P. O. Box 351 ... 40
P. O. Box 798 ... 42
Polacheck, Charles, & Bro., Co ... 70
Polk, A. J., & Son ... 25
Pomona Terra Cotta Co ... 34
Porter, H. K., Co ... 12
Poulterer & Co ... 45
Powhatan Clay Mfg. Co ... 8
Praray, C. A. M., & Co ... 6
Pratt & Whitney Co ... 2
Pratt, N. P., Laboratory ... 8
Price & Heald ... 49
Price Machinery Co ... *
Pulsometer Steam Pump Co ... 66
Putnam, Joseph R ... 37

Q

Queen City Printing Ink Co ... ‡

R

Railways & Light Co. of America ... 36
Ramsay, John E., & Co ... 6
Rand Drill Co ... 51
Ransome Concrete Mchy. Co ... 8
Ransome & Smith Co ... 8
Rawson & Morrison Mfg. Co ... 23
Raymond Bros. Impact Pulv. Co ... 51
Rayne Progressive Union ... 68
Record Printing House ... ‡
Red Cypress Lumber Co ... 49
Reed Mfg. Co ... 33
Reedy, J. W., Elevator Mfg. Co ... 26
Reliance Gauge Column Co ... 19
Remington Machine Co ... 22
Replogle Governor Works ... 67
Richardson & Co., Inc ... 44
Richardson Scale Co ... 72
Richmond Cedar Works ... 42
Richmond Pattern Works ... 37
Richmond Trust & Safe Dep. Co ... 35
Ridgway Dynamo & Engine Co ... 20
Risdon-Alcott Turbine Co ... 67
Risdon, Hugh C ... 36
Roanoke Nav. & Water Power Co ... 40
Robbins, O. A ... 62
Roberts, J. J., & Co ... 40
Robertson, Jas., Mfg. Co ... 53
Robins Conveying Belt Co ... 26
Robinson, Geo. A. Contracting Co ... 7
Robinson, J. M., Mfg. Co ... 24
Robinson, Wm. C., & Son Co ... 4
Robinson & Orr ... 44
Rockwell Engineering Co ... 7
Roebling's, John A., Sons Co ... 34
Root, B. M ... 47
Rossendale-Reddaway Belting & Hose Co ... 28
Rossiter, MacGovern & Co., Inc ... 41
Ross-Meehan Foundry Co ... 12
Royersford Fdy. & Mach. Co ... 21
Ruggles-Coles Engineering Co ... 8
Runyon, A. D ... 44
Ruth Auto Knitting Mch. Co ... 62
Ryan, J. J., & Co ... 13

S

Sabel Bros ... 44
Safety Car Heating & Light Co ... 4
Saginaw Mfg. Co ... 20
Samuel, Frank ... 44
Sanford-Day Iron Works ... 53
Saunders', D., Sons ... 11
Savannah Locomotive Works & Supply Co ... 12, 45
Savannah Trust Co ... 35
Saxton, J. C ... 42
Scaife, W. B., & Sons Co ... 6
Schofield's, J. S., Sons Co ... 28
Schonthal Iron & Steel Co ... 45
Schreiber, L., & Sons Co ... 9
Schumacher & Boye ... 24
Schwarz System Brick Co ... 40
Scott, James B ... 6
Scott & Williams ... 60
Scranton Steam Pump Co ... 72
Seaboard Air Line R. R ... 69
Seyfert's L. F., Sons ... 41
Shaffer Boiler & Eng. Mfg. Co ... 16
Shaw, Fred. Gordon ... 6
Shaw, Willis ... 42
Shedd & Sarle ... 6
Sheffield, O. H., & Co ... 6
Shelby Electric Co ... *
Shepherd Engineering Co ... 16
Sherwood Bot'bin & Mfg Co ... 63
Shimer, Saml. J., & Sons ... 48
Shultz Belting Co ... 72
Simmons, John, Co ... 58
Simpers, Thos. W., & Co ... 69
Simpson, J. S. & G. F ... 50
Sinclair, S. H., Co ... 2
Skinner Chuck Mfg. Co ... 24
Smidth, F. L., & Co ... 50
Smith-Courtney Co ... 17
Smith, H. B., Machine Co ... 48
Smith Premier Typewriter Co ... 68
Smith, S. Morgan, Co ... 67
Smith, J. Summerfield, & Co ... 49
Soule Steam Feed Works ... *
Southeastern Lime & Cement Co ... 8
Southern Cotton Oil Co ... 64
Southern Engine & Boiler Wks ... 16
Southern Iron & Equipment Co ... 44
Southern Pacific ... 40
Southern Pipe Covering Co ... 72
Southern Railway Co ... 69
Southwark Fdy. & Mch. Co ... 16
Speidel, J. G ... 27
Speir, W. E ... 7
Spencer & Hall ... 65
Sprague Canning Mchy. Co ... 69
Sprout, Waldron & Co ... 33
Stackhouse, W. F ... 44
Standard Caster & Wheel Co ... 53
Standard Electric Co ... 70
Standard Handle Co., Ltd ... 40
Standard Paint Co ... 55
Standard Scale & Sup. Co., Ltd ... 60
Standish, A., Estate ... 29
Star Brass Works ... 59
Starr, B. F., & Co ... 33
Stearns, F. P ... 40
Steel Rail Supply Co ... 45
Steele, J. C., & Sons ... 53
Stetson Lumber Co ... 49
Stevens', H., Sons Co ... 72
Stewart, John A., Electric Co ... 42
Stieff, Charles M ... 69
Stilwell-Bierce & Smith-Vaile Co ... 18
Stimpson, E. B., & Son ... 52
Stirling Co ... 19
St. Louis Iron & Machine Wks ... 15
Stocker, George J ... 32
Stony Creek Lumber Co ... 44
Stowell Mfg. Co ... 57
Strait, H. N., Mfg. Co ... 19
Straub Machinery Co ... *
Stuebner, G. L., Iron Works ... 33
Sturtevant, B. F., Co ... 45
Sturtevant Mill Co ... 50
Sullivan Machinery Co ... 51
Sutherland, Howard ... 69

T

Tabor Mfg. Co ... 4
Tallerday Steel Pipe & Tank Co ... 65
Talley, Robert H ... 40
Taylor Iron & Steel Co ... 59
Taylor, N. & G., Co ... 72
Thew Auto Shovel Co ... 51
Thompson, Son & Co ... 41
Thomson, Edward H., & Sons ... 35
Thomson, Henry W ... 36
Thornhill Wagon Co ... 37
Titus, E. E ... 46
Tobey & Kirk ... 36
Tod, William, Co ... 16
Tompkins, D. A., Co ... 64
Toomey, Frank ... 41
Trask, Spencer, & Co ... 35
Treasury Department ... 39
Trenton Iron Co ... 54
Triumph Electric Co ... 71
Tupelo Tank Co ... 32

U

Underwood, H. B., & Co ... 25
Union Brick Bond Co ... 57
Union Iron Works Co ... 17
Union Rail Co ... 44
University School for Boys ... 37
Upton, W. B., Co ... 6
U. S. Cast Iron Pipe & Fdy Co ... 67
U. S. Fidelity & Guaranty Co ... 36
U. S. Mineral Wool Co ... 39

V

Valdosta Fdy. & Mch. Co ... 41
Valk & Murdoch Iron Works ... 20
Valley Iron Works ... *
Vanduzen Co., E. W ... 16
Van Noorden, E., Co ... 59
Van Winkle, E., Gin & Mch. Wks ... 63
Vilter Mfg. Co ... 22
Virginia Bridge & Iron Co ... 6
Vitrified Wheel Co ... 48
Voorhees Rubber Mfg. Co ... 28

W

Waggoner Watchman Clock Co ... 4
Walke, Henry, Co ... 23
Walker & Elliott ... 50
Wall, P., Mfg. Supply Co ... 20
Warner, Charles, Co ... 8
Warren Chemical & Mfg. Co ... 58
Washburn, A. H ... 61
Waterbury Brass Co ... *
Waters, John A., & Co ... 41
Watkins, Frank M., Mfg. Co ... 17
Watson, Benjamin ... 45
Watson, R. E ... 40
Watson-Stillman Co ... 11
Webster, Warren, & Co ... *
Weir Frog Co ... 12
Wells, E. W ... 30
Wells Light Mfg. Co ... 71
Westbrooks, J. B., Fdy. & Mch. Co ... 40
Western Electrical Supply Co ... 71
Westinghouse Air Brake Co ... 14
Westinghouse, Church, Kerr & Co ... 14
Westinghouse Elec. & Mfg. Co ... 14
Westinghouse Machine Co ... 14
Westinghouse Traction Brake Co ... 14
West Pascagoula Creosote Wks ... 49
W. Va. Central & Pittsburg Ry ... 69
Whaley, W. B. Smith, & Co ... 6
Wheeler & Runge ... 6
White, H. E ... 6
Whitehurst Belting Co ... 28
Whitinsville Spinning Ring Co ... *
Whitney, Baxter D., & Son ... 11
Whiton, D. E., Machine Co ... 11
Wickes Bros ... 42
Wilce, T., Co ... 49
Wilcox, D., Mfg. Co ... 21
Wiley, E. C ... 6
Wilks Foundry Co ... 12
Williams Bros ... 66
Williams, John L., & Sons ... 35
Williams, M. F., Mfg. Co ... 28
Wilson Laundry Machinery Co ... 2
Wisconsin Graphite Co ... 8
Wisconsin Iron & Wire Works ... 55
Wolf, The, Co ... 33
Wolf, Fred. W., Co ... 22
Wolf & Bro., L ... 45
Wonham & Magor ... 44
Wood, R. D., & Co ... 67
Woods, T. B., Sons ... 30
Worthington, H. R ... 66
Wrightsville Hardware Co ... 59

Y

York Safe & Lock Co ... 54
York Mfg. Co ... 22

Z

Zell, Robt. Ross ... 39
Zelnicker, Walter A., Supply Co ... 44

PROPOSALS.

When Competitive Bids are Wanted

from first-class firms, these columns are invaluable in reaching engineers, architects, builders and contractors on railroad construction (steam and electric), water works, sewerage, electric light plants, municipal improvements, buildings and all public franchises and utilities throughout the entire country. Rate—20 cents per line per issue.

When the next regular issue of the Manufacturers' Record is too late for quick bids, the Daily Bulletin of the Manufacturers' Record will bring immediate results, as it is published every business day in the year, reaching many of the leading engineers, contractors, manufacturers and others, North, East, South and West.

Hon. J. A. Hadley, Mayor, Mt. Airy, N. C., in writing the Manufacturers' Record of the results from the advertisement he inserted in this column asking for bids on water works and electric light plant, says:

"Our special advertisement brought a number of inquiries for specifications for our proposed town improvements. We are well pleased with the results."

NOTICE—CONTRACTS TO LET.
The City of Winston, North Carolina.

Masonry and Earth Embankment Dam, Clear Water Basin, 9000 feet each; 12 inch and 10 inch Water Main, Stand Pipe 25 by 75 feet.

Sealed bids will be received by the Water Committee of the City of Winston, North Carolina, until 2 o'clock on the 14th day of August, 1903, at which time all bids will be publicly opened in the office of the Mayor.

For the construction of a rubble masonry and earth embankment dam, containing about 1100 cubic yards of masonry and 4000 cubic yards of packed embankment.

For the construction of a clear water basin, requiring about 7000 cubic yards packed embankment and 9000 square yards of concrete six inches thick.

For the trenching for and laying 9000 lineal feet each of 12 inch and 10 inch water main.

For the construction of a stand pipe 25 feet in diameter and 75 feet high.

Contractors will bid for each, the dam, the clear water basin and pipe line separately.

Each bid must contain the full name of every person or company interested in the same, and be accompanied by a bond to the satisfaction of the committee, or a certified check on some solvent bank in the sum of three hundred dollars, as a guarantee that if the bid is accepted a contract will be entered into and its performance properly secured. Should any bid be rejected such bond or check will be promptly returned to the bidder, and should any contract be entered into said bond or check will be returned upon the signing of the same.

The right is reserved to reject any and all bids. Information upon application to the City Engineer, to whom all bids must be directed.

JAS. K. NORFLEET, Chairman,
F. J. LIIPFERT,
GEO. T. BROWN, Committee.
ROBERT P. HENRY, City Engineer.

BIDS WANTED.

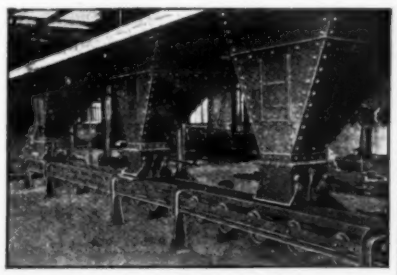
SEALED BIDS will be received by the City of Monroe, La., until Monday, August 17, 1903, for direct connected engine, 3 200 horse power first-class boilers and alternator, arc light transformers, etc. All bids should be addressed to the undersigned, who will furnish specifications and such other information as may be desired.

The successful bidder will be expected to take the machinery now on hand in part payment for the new machinery.

The city reserves the right to reject any and all bids.

C. A. DOWNEY, Mayor, Pro tem.

"HUNT" CONVEYOR,
For Handling Coal and Ashes



Ash Hoppers, Valves and Conveyor in the Basemen of Mt. Royal Pumping Station.

WRITE FOR CATALOG 0011.

C. W. Hunt Company,
West New Brighton, N. Y.
New York Office, 45 Broadway.

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., July 31st, 1903.—Notice is hereby given that the time for opening the bids for the new vaults (except vault doors), cash room, office of the U. S. Treasurer, and work incidental thereto, in the U. S. Treasury Department Building, Washington, D. C., has been extended from August 5, 1903, to 3 o'clock P. M., August 17, 1903. JAMES KNOX TAYLOR, Supervising Architect.

NOTICE TO CONTRACTORS.

CHARLESTON, S. C., August 1, 1903.

The trustees of the James S. Gibbes Art Gallery, viz.: Judge Charles H Simonton and Mayor J. Adger Smyth, invite sealed proposals for the erection and completion of an Art Gallery in the City of Charleston, S. C., agreeable to the plans and specifications now on file with J. H. Dingle, City Engineer, Charleston, S. C., and at the office of the Architect, Frank P. Milburn, Columbia, S. C.

Each contractor will file with his bid a certified check on some well-known bank for the sum of $2000, made payable to the trustees, as evidence that if his bid is accepted he will enter into contract at once, and give an acceptable Guarantee Company's bond in the sum of $25,000 for the faithful performance of the contract.

Should the successful contractor fail to file the bond required within twenty days, his check will be forfeited as liquidated damages by reason of the delay.

For more detailed information see plans and specifications.

Bids must be filed with Architect FRANK P. MILBURN, Columbia, S. C., on or before August 29th, 19 3.

The trustees reserve the right to reject any or all bids.

GULFPORT WATER WORKS.

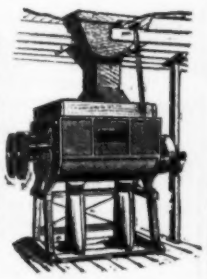
SEALED PROPOSALS will be received by the City Clerk of the Town of Gulfport, Mississippi, until 12 o'clock noon (city time) of Tuesday, the 25th day of August, 1903, for furnishing all materials, labor, tools and appliances for the erection of a water works system for the said town, in accordance with the plans and specifications now on file, and consisting of the following items, approximately:

One eight-inch artesian well. 800 tons of 6" to 14" cast iron pipe. 50 standard fire hydrants. 50 valves. 15 tons of specials. One two million gallon compound duplex pump. One two hundred thousand gallon brick receiving basin. Plans and specifications are on file at the office of the City Clerk at Gulfport, Mississippi, and at the office of the Engineer at Jackson, Mississippi. All bids must be made upon the blanks furnished, and accompanied by a certified check for $500, payable to the City Treasurer. The city reserves the right to reject any and all bids.

J. I. BALLINGER, Mayor.
E. W. WELLS, City Clerk.
WM. F. WILCOX, Engineer.

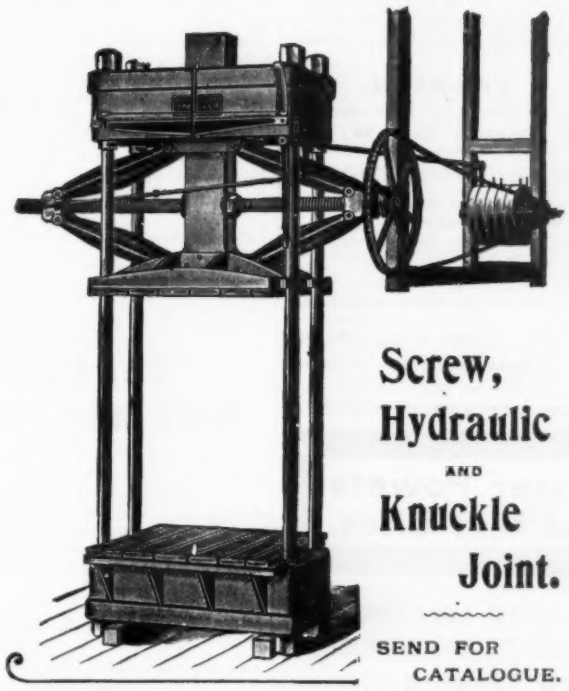
PITTSBURG METER CO.
MAKERS OF
KEYSTONE WATER METERS
OFFICE AND WORKS:
East Pittsburg, Pa.

The BROUCHTON DRY MIXER FOR Hard Plaster, Cement, Paint, &c.
W. D. DUNNING, 96 W. Water St., SYRACUSE, N. Y.



THE BOURNE-FULLER CO.
IRON, STEEL, and PIG IRON.
Cleveland, O.
Our stock at Cleveland includes BEAMS, CHANNELS, ANGLES, with facilities for cutting to lengths. Tees, Plates, Rivets, etc.

BOOMER & BOSCHERT
BALING PRESS.



Screw, Hydraulic AND Knuckle Joint.
SEND FOR CATALOGUE.
BOOMER & BOSCHERT PRESS CO.
386 W. Water Street, SYRACUSE, N. Y.

RICHARD A. BLYTHE,
COTTON WARPS AND YARNS,
No. 114 Chestnut Street, PHILADELPHIA, PA.

BUCKINGHAM, PAULSON & CO., Commission Merchants,
NEW YORK. COTTON YARNS, PHILA. CHICAGO.
CORRESPONDENCE AND CONSIGNMENTS SOLICITED.

Industrial Enterprises Organized and Financed.
If you have an Industrial Enterprise you want financed, write me, giving complete description and I will send you full information.
ROBERT ROSS ZELL, M. E., 204 McGowan Bldg., Birmingham, Ala.
Examiner for American Guaranty Company in the South.

MINERAL WOOL
FIRE, SOUND AND VERMIN PROOF INSULATOR.
Samples and Circulars Free.
U. S. MINERAL WOOL CO., 143 Liberty St., NEW YORK.

SPECIAL Advertisements OF GENERAL Interest.

OPPORTUNITIES FOR INVESTORS.

ADVERTISING RATES FOR SPECIAL ADVERTISEMENTS:

Inches	1 time.	2 times.	3 times.	4 times.
1	$1.75	$3.00	$4.25	$5.00
2	3.00	5.50	8.00	10.00
3	4.25	8.00	11.75	15.00
4	5.50	10.50	15.50	20.00
5	6.75	13.00	19.25	25.00
6	8.00	15 00	22.00	28.00
¼ page (13 in.)	16.00	30.00	42.00	52.00

Coal, Iron and Timber Lands.

WANTED—TIMBER LANDS.

Wanted—Large Tracts Long Leaf Yellow Pine, White Oak, Hickory, Spruce Lands, in Carolinas, Georgia, Tennessee, Virginia.

Address A. T. MOORE,
122 East 8th Street, Chattanooga, Tenn.
Also Wanted—Mineral Lands.

Parties desirous of investing in Timber, Coal, Lime or Cement properties in West Virginia are respectfully invited to apply to

R. P. PEARSON,
Mining Engineer and Surveyor.
Parsons, Tucker Co., W. Va.

Southern Investments

COAL and IRON Properties are my Specialty.

If you have a dividend-paying property to sell or wish to buy, write me. The larger the deal the better.

BANK REFERENCES FURNISHED.

R. E. WATSON, 401-402 Empire Bldg., ATLANTA, GA.

I have for sale **24,000 Acres of Virgin Timber and Coal Land,** both immense. Address J. H. BOGGS, Nicholasville, Ky.

Water Powers and Mill Sites.

UNRIVALLED LOCATION FOR INDUSTRIAL ENTERPRISES

WATER POWER 24 Hours Use Daily.

$15.00 per Horse Power per Year.
46 Feet Head and Fall at

Weldon, North Carolina

80 miles from Norfolk, Va. 12 hours travel from New York City. At junction of A. C. L. and S. A. L. Railway Systems. Steamboat to tidewater.

Free Building Sites, Banks, Schools, Electric Lights and Electric Power.

ROANOKE NAVIGATION & WATER POWER CO.

JAS. W. WILSON, President,
Write for Booklet. WELDON, N. C.

A GOOD WATER POWER

capable of running a 20,000 spindle mill near the Asheville & Spartanburg division of the Southern R. R.; in one of the most healthful sections of the South and where abundant cheap labor can be had, is for sale by

F. C. Abbott & Company
Charlotte, N. C.

ROBERT H. TALLEY,

Attorney-at-Law,

Postoffice Building, RICHMOND, VA.

Long Distance 'Phone No. 1606.

Corporation Law and Collections a Specialty.

Trade Marks Registered in all States having Registration Laws.

References—American National Bank; Virginia Trust Co.

Miscellaneous Properties and Investment Opportunities.

NEW ICE PLANT

For Sale in Missouri.

A new and complete Ice Plant with large cold storage capacity, in a Missouri town of 50.0 inhabitants, where apple growing is extensive and cold storage in great demand. An excellent retail and wholesale ice trade and the only ice plant in the city. A good coal trade in the winter.

Substantial brick buildings with walls well insulated. Ice wagons and teams, ice houses, barn, coal shed and all the fixtures belonging to a first-class ice plant. Figures reasonable and easy time on the payments. Will sell the entire plant or half interest to the right party.

Good reason for selling. Good interest payer. This is your opportunity.

A. P. DYKE, Hope, Arkansas.

Financial Agent, Broker in Hope property; also Farm, Fruit and Vegetable Lands around Hope, Arkansas, where we have three railroads, with the Frisco-Rock Island System about completed, and a fifth line of railway to be built. Much asphaltum near here, and a good oil development proposition. Fine climate and water.

For Sale.

The Old Pickens Plantation.

Located near Dyson's Post Office on C. & W. C. R. R., containing 1800 acres. 1500 acres in Greenwood County and 300 acres in Newbury County, S. C. Improvements—dwelling and twelve tenant houses. Iron bridge spans Saluda River, which flows through plantation. Best STOCK FARM in South Carolina. Price $15,000.00. Address

Clarence E. Clark,
AUGUSTA, GEORGIA.

FOR SALE.

5,000 Acres Best Fire Clay Land,

In Kentucky, on C. & O. Railway, near Olive Hill. Veins 6 ft. to 15 ft. For particulars write

J. B. EIFORT, ASHLAND, KY.

WANTED.

Axe Handle Shapes and Turned Axe Handles in the Rough,

Car load lots, for cash.

STANDARD HANDLE CO., Ltd.
KNOXVILLE, TENNESSEE

WANTED.

An experienced man as a promoter for Pottery clay, known as "Kaolin," used in fine china; for high grade sand used for plated glass, and for iron ore. For information write to

P. W. BUER,
545 Elm Street, DALLAS, TEX.

HARDWOOD HANDLE PLANT.

Will sell within the next 60 days a complete plant for manufacturing Hardwood Handles. Steam power, brick building, metal roof. Capacity 100 dozen per day. Located in the best section in the South to secure second growth hickory. On two through lines of railroads; depot within 100 yards; siding on the lot. Will make price and terms reasonable.

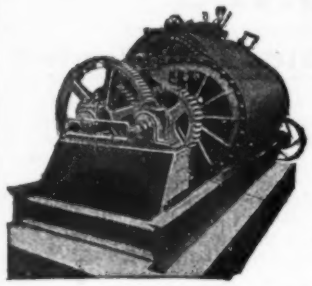
Address P. O. Box **70,** CONOVER, N. C.

FOR QUICK ACCEPTANCE.

We offer for sale an up-to-date milling plant, with dry kilns and planing mill attached. At the junction of two trunk lines of railroad. Timber has been estimated to cut about 22,000,000 feet. Rate to Brunswick, Ga., a deep water port, $6.00 per car. Price $25,000 cash.

This is a going concern and is ready for buyer to step right into a paying business. Good reasons given for wanting to sell.

BROBSTON, FENDIG & CO., Brunswick, Ga.



The Schwarz-System Brick Company,

SAND-LIME BRICK ENGINEERS.

Factories Built by Us are Built Right and Run Right.

Chemicals Are Not Necessary to Make Good Sand-Lime Brick.

6-8-10 BRIDGE ST., MARITIME BLDG., - - - New York.

"Millions for Farmers"

So Says Secretary Wilson U. S. Dep't of Agriculture.

TEXAS TOBACCO TRACTS Write for Full information to

Exhaustive tests prove that the finest grade of **CUBAN LEAF** Filler and Wrapper can be grown in East Texas on line of

The **SOUTHERN PACIFIC**

Soils and Climate similar to famous Vuelta Abajo District of Pinar del Rio, Cuba.

T. J. ANDERSON, General Passenger Agent, HOUSTON, TEX.

WANTED.

To correspond with reliable parties who are thoroughly competent and experienced in the manufacturing of brick. Parties must have or can control capital to the extent of $25,000. Same amount of capital to be subscribed here.

H. E. FULLER & CO.
HOUSTON, TEXAS.

PAINT FACTORY

FOR RENT.

At Boonton, N. J., 25 miles from New York. A well-equipped plant for the manufacture of paint, including mixers, soapstone mills, burr mills, agitators, putty mixer and sundry tools and appliances for making paint. Power for operating plant is furnished by water wheel already installed.

For further information apply to the estate of

J. COUPER LORD,
59 and 61 Wall Street, NEW YORK.

FOR SALE.

A Complete Wood Turning Plant Located in Heart of Hard Wood Region.

Plant consists of five Waymorth lathes, 2 back knife lathes, 2 Smith pail wood lathes, 2 automatic pail wood boring machines, 1 automatic pail wood gang saw, complete set of blacksmith tools, 1 10x12 Warren engine, 1 100 H.P. locomotive boiler, 1 engine lathe, 1 shaper, dry kiln enameling rooms, full set of knives and chucks for lathes, shafting, hangers, pulleys and belting.

Address P. O. Box 351. Baltimore, Md.

FOR SALE CHEAP.

Good, small **Woodworking Plant,** 50 horse power, well equipped with the best machinery. Owner is a contractor and can't run the plant longer. Must sell. No other plant in the city. Address

F. P. STEARNS, Fredericksburg, Va.

FOR SALE.—All the elm and small red and white oak on 10,000 acres of land in Mississippi, 60 miles south of Memphis. Railroad runs through the property. Address R. J. DARNELL, Owner, Memphis, Tenn.

FOR SALE.

Two (2) Blake Compound Condensing Duplex Pumps Complete, size 14x24x24x24.

One (1) Vertical Deep Well Pump (Dean) 18x12 x24.

One (1) Rand Drill Company Air Compressor, size 16x18x24, Meyer Valve Gear. Address

HAUBTMAN & LOEB CO., Ltd.
NEW ORLEANS, LA.

FOR SALE.

One Lodge & Shipley lathe, 18 in x10 ft. 0 in. 6 months old; used about 4 days. One No. 11 Union Drop Forge Company's oil furnace, new. Address

CHESAPEAKE IRON WORKS,
BALTIMORE, MD.

FOR SALE.

1 50 H. P. Engine, side crank, selfcontained, 12x18 cylinder, flywheel 66" diameter, 14" face; all appurtenances, built by Casey & Hedges, Chattanooga, Tenn., and none better made. In use about three years, with best care.
3 25 H. P. Boilers, Scotch marine, return tubular, stacks 25', 20" diameter; all appurtenances and pipe connections. Built by Casey & Hedges, and none better built. In use about three years, with best of care.
2 Worthington Prospecting or Sinking Pumps, 4½"x2¾"x4", steam pipe ½" discharge 1½", suction 2", capacity 3000 gals. of sandy, gritty water. In fine condition.
1 Centrifugal Pump, 2" discharge, 2½" suction. Made by Thos. Williamson, Hockessin, Del. A splendid pump, in fine condition.
1 Flory Hoisting Engine, cylinder ⅝, friction drum 10" diameter, 16" long. Capacity 900 lbs., with single line.
4 Horse Power Hoisting Drums, with automatic safety attachment. Made by Thos. Carlins Sons, Allegheny, Penn.
1 Fairbanks Trussed Lever Scales, Platform 10'x 9' 1¾", capacity 26,000 lbs.
1 Fairbanks Portable Scales, capacity 1000 lbs. large platform for barrows.
Also a large lot of Pulleys, 6" to 36" diameter and 6" to 28" face, iron and wood split.
Belting, Chesapeake brand, 29' to 52' and 4" to 14" wide.
Rubber, 12, 13 and 18' long, 6" face.
Also, all the machinery for washing clay.
The above to be delivered at railroad station at Sylva, N. C.

KAOLIN MANUFACTURING CO.
Waynesville, N. C.

FOR SALE.

Immediate Delivery.

One Westinghouse Standard Engine, 11x11 Est. H. P. 60.
One Westinghouse Standard Engine, 11x10 Est. H. P. 60.
One Slide Valve Engine, 10x12, Est. H. P. 30.
Two Return Tubular Boilers, each 60"x18', Est. H. P 80 each.
Two Smith-Vaile Single Hydraulic Pumps, 12x1½ x14.
The above machinery is in good order and was in operation up to April 30th, when it was taken out on account of enlargement and changes in our steam plant and other machinery equipment.

Address
NORTH CAROLINA COTTON OIL CO.
CHARLOTTE, N. C.

WE WANT TO REPRESENT MANUFACTURERS

for all classes of machinery and building material for this immediate vicinity and for the Southern States, and solicit your account as distributing agents.

A good opportunity is offered by us to make quick sales. Address

J. J. ROBERTS & CO.
NEWPORT NEWS, VA.

WANTED.—One or two good machinists, preferably those experienced in building elevator winding machines. J. B. WESTBROOKS FOUNDRY & MACH. CO., Danville, Va.

If you wish to keep posted on the progress of the South, read the Manufacturers' Record. Price $4 a year.

Bargains in— Machinery FOR IMMEDIATE DELIVERY.

BOILERS.

1 250 H. P. Babcock & Wilcox, 160 lbs. pressure.
1 250 H. P. Heine Watertube, 150 lbs. pressure.
1 200 H. P. Heine Watertube, 150 lbs. pressure.
3 350 H. P. Climax vertical, 150 lbs. pressure.
1 375 H. P. National, Watertube, 150 lbs. pressure.
1 267 H. P. Abendroth & Root, 150 lbs. pressure.
2 127 H. P. Abendroth & Root, 125 lbs. pressure.
2 100 H. P. Sterling Watertube, 125 lbs. pressure.
4 100 H. P. Economic Portable type.
14 RETURN TUBULARS, 72"x17', INSURED 110 lbs. HARTFORD.

ENGINES.

4 22x42x48 Hamilton Corliss, c. c.
1 22x32x48 Reynolds Corliss, tandem comp.
1 22x44x36 Harris Corliss, Steeple.
1 20x40x60 Watts Campbell, cross comp.
1 13x19x15 McIntosh & Seymour.
1 13x20 ½x15 Armington & Sims, c. c.
1 28x48 Wetherill Corliss.
1 20x40 Hamilton Corliss.
1 28x36 Cummer, 4 valve.
1 18x48 Brown Corliss.
1 18x18 Ridgeway McEwen.
1 16x16 Ball & Wood.
1 13x21 Buckeye automatic.
1 13x14 Ideal automatic.
1 13x12 Armington & Sims automatic.
1 12x12 Armington & Sims automatic.
1 9x12 Armington & Sims automatic.
1 14½x28 Delamater Corliss.
1 12x34 Brown-Fitchburg Corliss.
1 18x22 Atlas automatic.
1 7x10 Ideal automatic.
1 8x7 Westinghouse automatic.

Steam and Electrical Machinery.

THOMPSON SON & CO.

114-118 Liberty St. NEW YORK CITY.

Largest Stock

FIRST AND SECOND-HAND

MACHINERY.

REBUILT AND GUARANTEED.

What are your wants?

FRANK TOOMEY,

127-131 N. Third Street,

PHILADELPHIA.

The Valdosta Foundry and Machine Co.

BUYS FOR CASH:

Saw Mill Plants, Tram Roads, Locomotives, Rails, Engines, Boilers, Planers, Scrap Iron, Etc.

Offer us what you have to sell.

Write us for what you want to buy.

Valdosta Foundry & Machine Co.

VALDOSTA, GA.

FOR SALE.

One Ridgway Steam Hydraulic Crane, 10 tons capacity, 25 ft. boom. One Ridgway Steam Hydraulic Crane, 5 tons capacity, 25 ft. boom. One Ridgway Steam Hydraulic Crane, 3 tons capacity, 25 ft. boom.

All practically as good as new.

DAVIS & FARNUM MFG. CO., Waltham, Mass.

BOILERS!

Engines, Machinery in great variety at LOW PRICES.

Correspondence solicited by

FIDELITY MACHINE AND METAL COMPANY, 1406-22 Washington Ave., Phila.

Second-hand Dynamos, Motors and Electrical Appliances. All money savers. Repair anything. Have you a Dynamo or Motor for sale?

GUARANTEE ELECTRIC CO.

123-139 S. Clinton St. CHICAGO.

ENGINES.

1 20 & 36x48 Tandem Compound, Hamilton-Corliss
1 20 & 36x42 Tandem Compound Fitchburg.
1 18 & 34x48 Cross Compound Cooper Corliss.
1 18 & 36x48 Wheelock.
1 17 & 33x48 Improved Greene.
1 14 & 28x36 Cross Compound Slater.
1 14 & 26x42 Cross Compound E.P. Allis-Corliss.
1 36"x72" Corliss fifty (50) ton balance wheel.
1 28x60 Allis Corliss, "1890 frame."
1 26x48 Harris Corliss.
1 Twin 24x48 Hamilton Corliss.
1 24x48 Harris Corliss.
1 20x48 Geo. H. Corliss.
1 Twin 20x42 Harris Corliss.
1 18x42 Hamilton Corliss.
1 18x42 Knowlson & Kelly Corliss.
1 18x36 E. P. Allis Corliss.
1 14x30 Cummer.
1 19 & 31x24 Tandem Woodbury.
1 16 & 28x18 Tandem Erie Ball.
1 15 & 25x14 Cross Compound Ball & Wood.
2 13 & 23x18 Tandem Williams, heavy duty.
1 13 & 19x15 Tandem McIntosh & Seymour.
1 22x18 Fisher automatic.
2 18x18" Armington & Sims.
1 18½x18" McIntosh & Seymour.
1 18½x18" Ideal.
3 16x16 Ball & Wood.
1 15x16 Erie Ball.
2 13x18 Ide.
2 12x12 Armington & Sims.
1 10x12 McIntosh & Seymour.
2 9½x10 Armington & Sims.
1 6x8 Ideal.

BOILERS.

1 250 H. P. Babcock & Wilcox.
2 175 H. P. Stirling Watertube.

These boilers are practically new.

Rossiter, MacGovern & Co., (Inc.)

Electrical and Steam Machinery,

Whitehall Bldg., 17 Battery Place, New York City.

Factories—Jersey City, N. J., St. Louis, Mo.

BRANCH OFFICES:

110 State Street, BOSTON.

Missouri Trust Bldg., ST. LOUIS.

MENGEL'S MACHINERY EXCHANGE

15 H. P. Geyser Portable Boiler and Engine on wheels. 25 H. P. Portable Duvall on skids. 10 H. P. Baxter Engine and Boiler combined. 55 H. P. White & Middleton Gas or Gasoline Engine, 12" by 36". 60 H. P. Hamilton-Corliss Engine, directly connected to 25-ton Linde Ice Machine. 5 and 10-ton Vertical Compressors. 4 25 and 35 H. P. Horizontal Engines. Sharp's Collar and Cuff Ironer. Band Starcher and Ironer. 50 gal. Copper Starch Kettle. 60-light Dynamo. 25 110 volt Manhattan Arc Lights. Cylinder and Job Printing Presses. Paper Cutters. Complete Plants and Machinery of all kinds Bought, Sold and Exchanged.

Mengel's Mach'y Exchange, 12 E. Lombard St., Baltimore Md.

ENGINES, BOILERS AND PUMPS, for Immediate Delivery.

Three (30 h. p.) 60"x16' Boilers. One (60 h. p.) 50"x14' Boiler. One No. 14 (100 h. p.) Economic Portable Boiler. One 5'x21' (60 h. p.) Bucyrus Boiler. HEATERS—One 1000 h. p. Berryman. One 50 h. p. Erie. ENGINES—One 6"x6" Vert. (Greenfield). One 9"x12" Box Bed Side Crank (Talbot), fly wheel 54"x10½". One 12"x16" Box Bed Side Crank (Erie City), fly wheel 8'x15". One 14"x24" Box Bed Side Crank (Poole & Hunt), fly wheel 9'x16". One 16"x34" Box Bed Side Crank, fly wheel 8'x16". HOISTING ENGINES—One 5"x8" Double Cylinder, Single Drum (Lidgerwood), no boiler. One 6½"x10" Double Cyl., Link Motion (Neafie & Levy), no boiler. One 8"x8" Double Cyl., Single Drum (Copeland & Bacon), no boiler. LOCOMOTIVE—One 5"x10" Porter, Saddle Tank, Standard Gauge. TUG BOAT—One 64'x14'—17"x17" engine. Write for stock list of new and second-hand machinery; also our large machinery and supply catalogue. Address

THE CAMERON & BARKLEY CO., Charleston, S. C.

FOR SALE.

75 K. W. direct connected set. 115 volts, excellent condition,

J. C. M. LUCAS,

22 Light Street, BALTIMORE.

New and Second-Hand

Iron Tools and Woodworking Machinery

Corliss and Double Valve Engines for Trolley Roads and Electric Lighting Stations.

H. C. BAKER & CO.

114 N. 3d Street, Philadelphia, Pa.

FOR SALE.

Immediate Delivery.

AIR COMPRESSORS.

Two Rand Straight Line, "Class C," 18"x18"x24".
One Ingersoll-Sergeant, Class "G," Duplex, 20" x20¼"x24".
One Norwalk (2 stage) 14"x14"x9½"x16".
Two Rand Duplex (3 stage) 16"x14"x8½"x4½" x22".
One Rand Duplex Corliss, 20"x20"x36".

BOILERS.

Four Babcock & Wilcox Water Tube, 208 h. p. each, shaking grates.
Eight Horizontal Return Tubular, 66"x16'.
Three Horizontal Return Tubular, 72"x12'.
Four Horizontal Return Tubular, 72"x16'.
Three Horizontal Return Tubular, 60"x16'.
Nine Horizontal Return Tubular, 72"x18'.

ENGINE.

One 20"x40" Buckeye, girder frame, band wheel in half, 12'x31" face.

LOCOMOTIVES.

36" gauge Locomotives.
Four H. K. Porter 9"x14", saddle tank.
Two Vulcan 9"x14", saddle tank, built 1900.

RAILS.

200 tons 30-lb. steel relayers.
200 tons 35-lb. steel relayers.
500 tons 56-lb. steel relayers.

CARS.

Eighty 80,000-lb. Ore Hopper Cars, made by Allison Mfg. Co.

PUMP.

1 Worthington Compound Duplex Condensing Pump, 25"-43"x17½"x36", 20" suction and 18" discharge. Capacity, 3,000,000 gallons.

All of the above in A 1 order and ready for immediate delivery.

We buy and sell Air Compressors, Engines, Locomotives, Rails, Cars, Bridges, Boilers, Hoisting Engines and Pumps, etc. Complete plants purchased.

Steam Street Motor Car.

Baldwin standard gauge, compound cylinders, only four years old, weight 60,000 pounds. Cost new, $5900. For quick acceptance will be sold at a great bargain, subject prior sale and inspection.

BOILER STACK.

1000 feet of 34" Boiler Stack, 5-16" material. This stack is first-class in every respect and will be sold at a bargain.

CYLINDER BOILERS.

8 Boilers, 40' long x 34" diam., good for 100 lbs. steam pressure, without fixtures or fittings. For quick sale will be sold cheap.

A. V. KAISER & CO.

222 South Third St., PHILADELPHIA, PA.

ENGINES.

One 18x42 Harris-Corliss Engine.
One 16x20 S. C. Washington Iron Works' Engine self-contained.
One 13x22 S. C. Cardwell Engine.
One 11x18 C. C. Talbott Engine, Box-bed.
One 14x16 S. C. Engine.
One 11x15 Richmond Locomotive Works' S. C.
One 11x14 A. & C. C. C. Engine.
One 7x8 Vertical Engine.
One 6 H. P. Vertical Engine.
One 4 H. P. Vertical Engine.
One 20 H. P. Farquhar Traction Engine.
One 15 H. P. Aultman & Taylor Traction Engine.
One 12 H. P. Birdsall Traction Engine.
One 10 H. P. Frick Engine and Boiler mounted on wheels.

BOILERS.

One 80 H. P. High-Pressure R. T. Boiler, good for 120 lbs. steam working pressure.
One 80 H. P. R. T. Boiler.
One 70 H. P. R. T. Boiler.
One 60 H. P. R. T. Boiler, Half-Front.
One 50 H. P. R. T. Boiler, Full-Front.
One 50 H. P. Economic Boiler.
One 40 H. P. Ecomomic Boiler.
One 40 H. P. R. T. Boiler, Half-Front.
One 25 H. P. R. T. Boiler, Half-Front.
One 20 H. P. R. T. Boiler, Half-Front.
One 15 H. P. Locomotive Type Boiler on wheels.
One 30 H. P. Vertical, and several smaller sizes.

Also several sizes of pumps and other machinery. The above are in A-1 condition. Write for particulars.

Jno. A. Waters & Co., Richmond, Va.

FOR SALE.

Fifty Whitin Welman Top Flat Cards, with 40 tops 40 ins. wide. Cylinder 42 x40 ins. Doffer 40x18 ins. Floor space 8 ft. 2 ins.x5 ft. 2 ins., with coilers. Production 125 lbs. per day. Some of these cards are only 3 years old, balance 8 years. They can be seen running. Also 150 sets Steel Clothing in extra good condition; 100 Doffers; 150 Mason Looms, 44"; 10 Ashworth Revolving Top Cards. For full information and price apply to

WM. J. DUNN,

Fall River, Mass.

FOR SALE.

$75,000 worth of New Leather Belting, somewhat stock-worn, but for all practical purposes as good as ever, running in sizes from 1 inch wide to 24 inch wide, single and double. Will sell this belting at second-hand prices in lots to suit buyers, and it can now be inspected in our warerooms.

L. F. SEYFERT'S SONS,

437-439 N. Third Street, PHILADELPHIA.

FOR SALE.

Two Pairs 16x20 Link Motion Engines.

Can be used for Hoisting Purposes.

CHAS. T. LEHMAN,

BIRMINGHAM, ALA.

FOR SALE.

The following second-hand cloth machinery, in first-class condition, now in our mill at Petersburg, Va., which we have recently bought and are converting into a spinning mill exclusively, and we wish the room occupied by this machinery for other purposes. Most of this machinery is practically as good as new, and can be bought at a bargain, either the whole lot or in lots to suit:

102 40" looms, Whitin and Lowell make, set up to make 36" 56x60 4-yard goods, all complete, including belts, reeds, harness, shuttles and beams.
25 40" looms same as above, except stripped of harness.

SUPPLIES.

Reeds.

163 30 dents per inch, 43" long.
151 29½ dents per inch, 43¾" long.
2 26 2-10 dents per inch, 44¾" long.
2 37.96 dents per inch, 37¾" long.
4 39½ dents per inch, 39½" long.
1 38.72 dents per inch, 38¾" long.
53 44 dents per inch, 44" long, same as looms are now equipped with.
1 38.26 dents per inch, 38¼" long.
5 39¾ dents per inch, 39¾" long.

Loom Supplies.

31 strap hooks.
28 rolls 2" belting, 17 feet to roll.
2 rolls 1½" belting, 17 feet to roll.
33 picker sticks.
45 new Litchfield shuttles.
90 second-hand shuttles.
43 wooden crank bars for Lowell looms.
52 lug straps.
52 rawhide picker loops.
50 striped canvas picker loops.
92 crankshaft box bolts, 1½"x½", for Whitin looms.
113 bolts for parallel springs, 4"x⅝", for Whitin or Lowell looms.
24 jack hooks.
10 shuttle springs.
100 loom beams for 40" looms.
30 sets second-hand harness.
105 new loom cranks—32 for Lowell, 73 for Whitin.

Slasher.

1 Lowell slasher 57" face, double copper cylinders 7 feet and 5 feet diameters.
1 copper size vat 37"x39".

Warpers.

2 Hopedale warpers with creels for 480 ends each.
12 warper beams 54" between heads.

Finishing Machinery.

1 Curtis & Marble shearing and brushing machine.
1 Elliott cloth folder.
1 Bushnell cloth press.
1 Dinsmore sewing machine.

Address

CHESTERFIELD MFG. CO.,

Kinston, N. C.

Machinery Bargains.

Second-Hand—Good Condition.

Vertical Boilers to 40 H. P., Hor. Tub. Boilers to 90 H. P., Locomotive Boilers 20, 60, 100 H. P., Westinghouse Engine 28 H. P., Chandler & Taylor auto. high speed 8x10, Hor. plain slide valve engine to 25 H. P., Steam pumps all sizes, lot large valves.

Wood Mortisers, Boring machines, Gray & Wood planers, 26x6 and 26x12 double surfacers, Swing Saw, Jig Saw, Variety Moulder, 16" Fox Lathe, 16" Spinning Lathe, 5 speed lathes, 10" Sc. Cutting Lathe, 8" Boynton Shaper.

NEW MACHINERY.

10" to 26" Screw Cutting Lathes, 20" to 28" Drill Presses, Power Hack Saws, Emery Grinders, Buffalo Forges, 2½, 5, 7½ H. P. Gas Engines, 3 to 15 H. P. Vertical Engines, 12 to 30 H. P. Auto. High Speed Engines.

Shafting, Hangers, Pulleys, Belting, etc. Pipes, Valves, Fittings, the largest stock in the South. Write what you want or have to sell.

J. D. MALLORY,

BALTIMORE, MD.

FOR SALE.

1 45-ton Vulcan Steam Shovel, standard gauge, in good condition, ready for immediate delivery.

5 Standard Gauge American Type Locomotives.

Cars, Rails and Contractors' plant of every description.

If you want to buy or sell contractors' plant, we can help you.

Correspondence solicited.

CONTRACTORS EQUIPMENT CO.

1124 Betz Bldg., Philadelphia, Pa.

FOR SALE.

1 18x42" Left Hand Harris Corliss Engine. Thoroughly Repaired. GUARANTEED good as new.

CLYDE MACHINE WORKS,

39th St. and Union Ave. CHICAGO, ILL.

LATHES.

No. 72 14″x5′ Lodge & Shipley.

No. 73 14″x5′ Lodge & Shipley.

No. 49 20″x10′ Taper, Lodge & Shipley.

No. 47 20″x8′ Lodge & Shipley.

THE LODGE & SHIPLEY MACHINE TOOL CO.

CINCINNATI, OHIO, U. S. A.

Machinery Bargains.

4 Upright Mortisers.
1 42″ 3-drum Columbia Sander.
1 No. 1 Self-feed Rip Saw.
1 Smith Combination Saw Table.
1 Smith Tenoner.
1 Williamsport Tenoner.
1 Fay & Co. Tenoner.
1 each 8, 12, 16, 20, 30 Hand Jointer.
1 26″ Endless Bed Double Surfacer.
4 24″ Single Surfacers.
1 24″ Single Surfacer and Matcher.
1 each 30, 36, 42, 48″ Band Saw.
1 each 7″ 4-side, 8″ 4-side, 9″ 4-side, 10″ 4-side, 4″ 3-side, 6″ 1-side Stickers.
1 Double Deck Saw Mill.
2 Veneer Presses.
Large line second-hand Engines, Boilers, Belting, Pulleys, Hangers, etc.

Cleveland Belting & Machinery Co., Cleveland, O.

FANS.

Central station man's opportunity to increase the day load. We offer for immediate delivery, all f. o. b. Cincinnati, the following 125 cycle fans:

150 G. E. swivel and trun., 12 in., 104 volt., $5.00 each.
150 Emerson solid, 12 in., 52 volt., $3 each.
200 Westinghouse solid, 13 in., 52 volt., $3.50 each.
100 G. E. swivel and trun., 12 in., 52 volt., $4.00 each.

JOHN A. STEWART ELECTRIC CO.
430 Sycamore St., Cincinnati, Ohio.

WANTED

A Good Second-Hand 24 in. Double Surfacer

Sectional Rolls.

RICHMOND CEDAR WORKS,
RICHMOND, VA.

FOR SALE.

One 18x24 Pittsburg Locomotive. Six Drivers. Weight 42 tons. Condition good. Price $3500.00. Immediate shipment.

W. F. DAVIS,
Birmingham, Ala.

FOR SALE.

12 Western Wheeled Scrapers.
10 Drag Scrapers.
4 Western Railroad Plows.
2 Rooter Plows.
1 two and one-half ton Ames Disc Roller.

WILLIAM HANLEY, Contractor, Bradford, Pa.

BOILERS—Second Hand,

FOR SALE.

1 50 H. P. horizontal.
1 60 H. P. horizontal.
1 70 H. P. vertical.
6 steam pumps, new. All good condition.

E. J. CODD CO., Baltimore, Md.

BARGAINS—CHEAP.

One Deane Duplex Comp. Pump, 14x26x11x18.
One 30x13 Blake Pattern Crusher, nearly new.
Three Hoisting Engines. Rails, Locomotives.

L. E. KENNEDY & CO.
17 Broadway, New York City.

FOR SALE.

Partial List Second-Hand Machines

13″x5′ Pratt & Whitney, rise and fall rest, with taper.
14″x54″ Putnam, rise and fall rest.
14″x6′ Prentiss, rise and fall rest.
14″x6′ Blaisdell, rise and fall rest, with taper.
15″x6′ Poeter, rise and fall rest.
15″x6′ Prentiss, rise and fall rest, with taper.
16″x8′ Pratt & Whitney, rise and fall rest, with taper.
16″x7′ M. B. & C., plain rest.
16″x10′ Fay & Scott, compound rest.
18″x8′ Reed, plain.
18″x8′ Lodge & Davis, compound rest and taper.
24″x10′ No Name, incomplete.
26″x8′ Betts Lathe, compound rest.
30″x8′ Stark, plain.
36″x14′ Betts Lathe, compound rest.
No. 2 B. & O. Turret.
No. 14 Garvin Special Forming Turret Lathe.
14″x6′ Lodge & Barker Turret Lathe.
16″x6′ Johnson Turret Lathe.
18″x6′ Lodge & Davis Chucking Lathe.
Six-Spindle Miles, Bement & Co. Arch Bar Drill.
26″ Bickford Upright Drill.
20″ Barnes Upright Drill.
Three-Spindle Upright Slate Sensitive Drill.
Three-Spindle Garvin Sensitive Drill.
24″x24″x6′ Sellers Planer, one head.
42″x42″x10′ Whitcomb Planer, two heads.
42″x42″x18′ Betts Planer, one head.
16″ Smith & Mills Shaper.
No. 2 Keyseat Milling Machine.
No. 2 Garvin Plain Milling Machine.
No. 1 B. & S. Universal Milling Machine.
No. 4½ Garvin Plain Miller.
No. 3 Garvin Plain Miller.
2 No. 2 Garvin Plain Millers.
1 No. 4½ Brainard Plain Miller.
No. 4 Schlenkers Double-Head Bolt Cutter.
2″ Pratt & Whitney Cutting-Off Machine.
12″ Lowell Machine Co.'s Slotter.
Double-Head Pratt & Whitney Horizontal Boring Mill.
Cold Saw, 19″ Blade, Pump and Pan.
30″ Springfield Knife Grinder.
Wells Bros. Cutter and Reamer Grinder.
Springfield Tool Grinder, 36″ Wheel, with pump.
2 Speed Lathes.
4 35 H. P. Portable Boilers.
1 Blacksmith Bellows.
Also a complete line of new machines. Correspondence solicited.

Brown & Zortman Machinery Co.,
PITTSBURG, PA.

2ND-HAND TOOLS.

Lathes.
16 in. x 6 ft. Porter.
18 in. x 8 ft. Fifield.
18 in. x 8 ft. Lodge-Davis.
20in. x 4 ft. New Haven.
27 x 11 Geo. Place, heavy.
28 x 12 ft. Fay & Scott.
26 Stewart Speed Lathes.

Planers.
24 in. x 4 ft. heavy, Leeds.
30 x 8 Flather.
36 x 8 Wheeler.

Shapers.
12 in. Gould.
16 in. Geared, Western.
18 in. Ohio, crank.

Drills.
Ceiling, 3 ft. arm, Radial.
Ceiling, Boilermakers.
30 in. Prentice Bros.

Screw Machs.
No. 00 Garvin, ¼ in., with wire feed.
Auto. Spencer, ⅜ in.
Auto. B. & S., ⅜ in.
Garvin Hub Mch., 4⅛ in. hole.

Grinders.
No 2 Surface, Universal Co.'s.
No. 3 B. & S. Cutter and Tool.

Wood Working.
No. 1 Greenlie, Auto. R R. Cut-off Saw.
16 in. Goodell & Waters Planer, 1½ in.
Prybil Planer and Joiner.
Ex. heavy 4 side Timber Planer and seven other machines.

Miscellaneous.
Sq. Arbor Gage Fox Lathe.
50 lb. Bliss Drop Hammer.
550 lb. Merrill Drop.
Oil Separator, American.
No. 1 B. & S. Univ. Miller.
No. 4½ Brainerd Plain Miller.
No. 2 P. & W. Screw Slotter.
160 Ton Sellers Hyd. Wheel Press.
13 in. Bement Slotter.
No. 1 Stiles and No. 19 Bliss Presses.
10 H. P. N. Y. Safety Engine, etc., etc., etc.

Write your requirements.

G. L. BENNETT, 113 Liberty St., New York.

FOR SALE.

2½ horsepower	Fairbanks, cost $185.00	.....	$90.00
8 horsepower	Fairbanks	.....	$250.00
25 horsepower	Fairbanks	.....	$550.00
6 horsepower	Otto	.....	$250.00
10 horsepower	Otto	.....	$275.00
35 horsepower	Otto	.....	$600.00
15 horsepower	Lambert	.....	$375.00
60 horsepower	New Era	.....	$800.00
68 horsepower	Foos, cost $2000.00	.....	$950.00

Guaranteed to be in perfect working order.

New Backus gas and gasoline engines, positively the best engine built at reasonable prices and on long time. I buy, sell or exchange gas and gasoline engines.

J. M. JOHNSTON,
22 S. Canal St. CHICAGO ILL.

FOR SALE.

1 22x52 R. H. Watts Campbell **Corliss Engine.**
1 60 HP. straight line **Automatic Engine.**
1 10x12 Ideal **Automatic Engine.**
1 10x7x10 Worthington **Duplex Pump.**
1 15 ton **Road Roller** for sale or rent.
1 Little Giant **Steam Shovel.**
4 Single **Drum Hoisting Engines.**

JAS. S. BRADEN, 26 Cortlandt St., New York.

WANTED TO PURCHASE.

One 8½ in. by 10 in. double cylinders and double drum hoisting engine without boiler.

Address,

P. O. BOX 798,
New Orleans, La.

FOR SALE.

One Second-hand "BERRYMAN" HEATER AND PURIFIER, in perfect condition and guaranteed good as new. Will sell cheap for cash. Address

M. F., care Mfrs. Record,
Baltimore, Md.

CAN YOU USE ANY OF THESE?

"Little Giant" ¾-yd. traction steam shovel, $3500 in Ohio.
Vulcan, 30-ton, 1-yd. steam shovel, fine condition, $3850.
Vulcan, 55-ton, 1¼-yd. steam shovel, boom type, thrusting engine, hor. boiler, available June 15th, $7200 Chicago.
Vulcan, 60-ton, 2½-yd. shovel, with hor. boiler, steel boom and thrusting engines, $9300 at Toledo shops (new).
2 "New Era" Steel frame graders, same as new, at $650 each.
46 side dump cars, 36-inch gauge, 3½ yards, at $60 Chicago.
17 Western, 24-inch gauge, 1¼-yard dump cars, $30 each Chicago.
2 new "Davenport," 36-inch gauge Dinkie locomotives, $3200 each, July delivery.
Porter, 9″x14″, saddle-tank, 36-inch gauge Dinkie, $2750, at once.
Baldwin, 9″x14″, saddle-tank, 36-inch gauge Dinkie, just overhauled, $2350 at once.
Western, 9x15, stone crusher, mounted on wagon truck, at Chicago, $300.
14x20 Atlas horizontal automatic engine, $475 Chicago.
8x9 Ames C. C. balanced valve 15 H. P. engine, perfect order, $100 Chicago.
12x36″ Hamilton Corliss engine, $1000 Chicago.
16x42 Cooper Corliss engine, $1500 Chicago.
16x42 Harris right-hand Corliss engine, $1450 Chicago.
St. Louis "Star" Duplex, 8x8 belted air compressor, 120-foot capacity, $380 Chicago.
Hall, 14x14x18, air compressor, 350 feet per minute, $800.
Rand, 16x15x24, air compressor, $1250 Chicago, capacity 500 feet.
Morris 10 inch centrifugal sand and dredging pump, with engine direct connected on same bed, $675 Chicago.
Cylindrical steel pressure tank, 72-in. diameter, 24-ft. high, made of ⅜-in. plate, $225 Chicago.
No. 71 Orr & Sembower, 7x10 double cylinder double drum hoist and boiler, $650 Chicago.
Ten other second-hand hoisting engines.
New Flory hoisting engines in stock Chicago.
Two McKiernan 2½ inch air rock drills, at $115 Chicago.
Six Rand "Little Giant" 3½-inch rock drills, at $135 Chicago.
Six Rand "Little Giant" 2¾-inch rock drills, at $125 Chicago.
6000 feet of ⅝-inch pliable hoisting cable, spliced to lengths to suit, absolutely guaranteed, at 4 cts. per foot.
New and second-hand machinery generally for contractors, railroads, mines and quarries.

Immediate delivery on the above. Address

WILLIS SHAW—Machinery, 171 La Salle Street, Chicago.

BARGAINS FOR QUICK DELIVERY.

No. 2 Gates **Crusher.**
No. 3 Gates **Crusher.**
No. 5 Style B, Gates **Crusher.**
Double column **Drop Hammer,** cylinder 14″x 36″, fine order.
Good **Second-Hand Engines.**
12-ton **Kelly Roller,** fine as new.
New **Well Drilling Machine,** cheap.
Marion AA Shovel, fine condition.

WE SELL
Engines, Boilers,
Pumps and Quarry Supplies,
Concrete Mixers,
Horse Rollers,
Steam Drills,
Air Compressors,
Belting, Hose,
and a full line of
Contractors' Supplies.

CONTRACTORS' SUPPLY & EQUIPMENT CO., 232 Fifth Avenue, CHICAGO.

GAS ENGINE.

We have for sale an 80 H. P. Standard two cylinder Engine, specially designed for Electric Light use.

Engine is practically new and price very low.

THE F. BISSELL CO., 150 Huron St., Toledo, Ohio.

SECOND-HAND

Locomotives

64 TON BALDWIN STANDARD GAUGE WITH TENDER.

Cylinders 15x24″.
2 drivers on each side 60″ diam.
Tires 1½″ thick.
Wheel base, 7′ 6″.
1 set 4 wheel trucks under front end.
No brake.

40 TON BIG FOUR STANDARD GAUGE WITH TENDER.

Cylinders 14x22″.
2 drivers on each side 47″ diam.
Tires 1⅜″ thick.
Wheel base 7′.
Steam brake.

35 TON BROOKS MOGUL STANDARD GAUGE WITH TENDER.

3 drivers on each side 41″ diameter.
Tires 2 9-16″ thick.
Cylinders 13/16x18″.
Air Brakes.

6 TON RYAN & McDONALD 30″ GAUGE SADDLE TANK.

Cylinders 7⅛x10″.
2 drivers on each side 24″ diam.
Wheel base 54″.

Engines, Boilers, Pumps, Wood Working Machinery and Machine Tools of every description.

Send for complete Stock List.

WICKES BROTHERS,

—OFFICES—

808 Frick Building, Pittsburg, Pa.

ALSO

New York City. Chicago, Ill. Saginaw, Mich.

A BOAT LOAD OF

Contractors' Machinery

JUST RECEIVED.

There are some "good things" among the lot for you. Let us know your wants.

HOISTING ENGINES.

2 7″x10″, double cylinder, double drum.
7″x10″, double cylinder, four drum.
6″x8″, double cylinder, double drum.
8″x6″, double cylinder, double drum.
Byers Friction, swinging drum.
30″x6′ gravity drum.
No. 4 Champion Crusher, with elevator.
5′ Cube Concrete Mixer.
1-yard Steel Bottom Dumping Concrete Box.
2 No. 6 Horizontal Centrifugal Pumps.
5½″x7″ Hall Air Compressor, belt driven.
Sand Washer.
5 and 10 H. P. Gas Engines.
12″x12″-40′ Mast and 50′ Boom Derrick.
6 30-lb. Rails.
9 Oak Coal Boxes, 25 to 60 bushels.
Wire Hoisting and Guy Rope.
Double and Single Wire Rope.
Blocks, and a lot of other miscellaneous odds and ends, such as you will find in a contractors' outfit.

Carlin Machinery Supply Co.

Lacock and Sandusky Sts.
ALLEGHENY, PA.

FOR SALE.

Five new Vertical Boilers.
One second-hand H. R. T. Boiler, 72″x 16′, 130 lbs. pressure.
Two Locomotive Boilers, 175 H. P.
One 12-ton Kelly Road Roller.
One 15-ton Kelly Road Roller.

J. C. SAXTON,
18 Broadway, New York City, N. Y.

FOR SALE CHEAP.

Several Dynamos, Motors, Engines, Boilers, Pumps, Steam Traps, Damper Regulators, Iron Pulleys, Shafting, Etc. Practically good as new. Get our figures before buying elsewhere. We can beat 'em all on prices.

American Electric Supply & Mfg. Co.
27 Thames St., New York City.

Our Bargain Page.

In our prosperous march in behalf of Bargain Seekers, we have never had a larger list of items to offer than at the present time.

We get the first chance when "good things come off." No Sheriffs' or Receivers' Sale of any consequence is complete without the presence of one of our alert representatives.

The CHICAGO HOUSE WRECKING COMPANY is easily the peer in its field.

Merchants with evenly balanced reasoning powers appreciate our prices and patronize us liberally.

STEEL TANKS.

We have in stock a very large quantity of fine steel tanks for storage, pressure and other purposes. This is a partial list:
1 pressure tank 46" in dia. x 15' long, 5-16" plate.
1 storage tank 78" in dia. x 26' long, ½" plate.
1 storage tank 8 ft. in dia. x 28 ft. long, 3-16" plate.
1 storage tank 42" in dia. x 28' long, ¼" plate.
1 storage tank 42" in dia. x 26' long, ¼" plate.
2 gasoline or oil storage tanks, 32" in dia. 6' long, ¼" plate, with cast-iron removable heads.
2 rendering tanks 60" in dia. x 9' long, ¼" plate.
1 pressure tank 30" in dia. x 22' long, 5-16" plate.
1 open pan 54" wide, 8½' long and 12" deep, ⅛" plate.
1 pan 5½' wide, 9' long, 15" deep, ⅛" plate.
1 trough 30" wide, 15' long and 26" deep, 3-16" plate.
1 open pan 4' 9" wide, 12' long and 26" deep, 3-16" plate.
2 pressure tanks 36" in dia., 32" long, ¼" plate.
1 storage tank 36" in dia., 8' long, 3-16" plate.
2 pressure tanks 22" in dia., 9' long, 5-16" plate.
1 pressure tank 24" in dia., 5' 6" long, ¼" plate.
1 pressure tank 22" in dia., 4' long, ¼" plate.
1 pressure tank 24" in dia., 4' long, ¼" plate.
1 storage tank 48" in dia., 6' long, 5-16" plate.
1 storage stank 36" in dia., 9' 6" long, 3-16" plate.
1 storage tank 36" in dia., 6' long, 3-16" plate.
1 pressure tank 42" in dia., 6' long, ⅜" plate.
1 pressure tank 30" in dia., 8' long, ¼" plate.
1 pressure tank 30" in dia., 4' long, ¼" plate.
1 pressure tank 48" in dia., 4' long, ¼" plate.
1 storage tank 36" in dia., 7' 6" long, ¼" plate.
1 storage tank 24" in dia., x 11' 5" long, ¼" plate.
1 pressure tank 42" in dia., 9' 6" long, ¼" plate.
1 open tank 60" in dia., 6' high, 5-16" plate.
1 storage tank 48" in dia., 8' high, ¼" plate.
1 rectangular tank 5' wide, 9' long, 7' high, ¼" plate.
1 storage tank 42" in dia., 10' long, ¼" plate.
1 storage tank 42" in dia., 6' long, ¼" plate.
1 pressure tank 42" in dia., 8' long, ¼" plate.
1 storage tank 48" in dia., 8' long, ¼" plate.
1 storage tank 36" in dia., 8' long, ¼" plate.
1 storage tank 36" in dia., 8' long, 3-16" plate.
1 storage tank 42" in dia., 8' long, ¼" plate.
1 storage tank 36" in dia., 10' long, ¼" plate.
1 open storage tank 36" in dia., 4' long, 3-16" plate.
1 storage tank 36" in dia., 6' long, ¼" plate.
1 storage tank 48" in dia., 8' long, ¼" plate.
1 storage tank 42" in dia., 9' long, 3-16" plate.
1 open tank 48" in dia., 5' high, ⅜" plate.
1 pressure tank 24" in dia., 4' long, ¼" plate.
1 storage tank 42" in dia., 8' long, ¼" plate.

PIPE.

Our stock of good standard black second-hand pipe, with guaranteed threads and couplings, as follows:
100,000 ft. 1 inch, per foot.... 3¼ cts.
200,000 ft. 1¼ inch, per foot.... 4¼ cts.
50,000 ft. 2 inch, per foot.... 7¼ cts.
200,000 ft. 2½ inch, per foot....10 cts.
50,000 ft. 1 inch, EXTRA HEAVY, per foot, 4 cts.
55,000 ft. 1¼ inch, EXTRA HEAVY, per foot, 5½ cts.
800 ft. 8 inch, with flanges, per foot..$ .70.
400 ft. 10 inch, with flanges, per foot.. 1.10.
1800 ft. 12 inch, with flanges, per foot.. 1.45.
1400 ft. 14 inch, with flanges, per foot.. 1.75.
600 ft. 16 inch, with flanges, per foot.. 2.00.
200 ft. 18 inch, with flanges, per foot.. 2.25.

WROUGHT-IRON CASING.

Second-hand, THREADED ENDS AND SCREWED COUPLINGS:
3½ inch, per foot, 9 cts.
4 inch, per foot, 13 cts.
Fitted with EXPANDED CAST-IRON FLANGES AND BOLTS:
2¼ inch, per foot, 4½ cts.
3½ inch, per foot, 10 cts.
4 inch, per foot, 13 cts.
10,000 ft. 3 inch GALVANIZED SPIRAL RIVETED, per foot, 7 cts.

CURVED PIPE.

We have in stock two carloads of heavy standard black pipe fitted with cast-iron riveted flanges, which is curved from ⅛ to ¼; sizes 8, 10, 12 and 14 inch. It is in good condition, and will be sold at low prices.

TINPLATE.

We purchased several cars of defective, put up in boxes of 100 lbs., miscellaneous size sheets and various gauges. Price per 100 lbs., $2.70.

GALVANIZED SHEETS.

A carload of new galvanized sheets, miscellaneous sizes, gauges 18 to 22. Per pound, 3 cents.

BLACK SHEETS.

Four carloads of miscellaneous size black sheets from 16 to 24 gauge.

STEEL ROOFING AND SIDING.

A large quantity of No. 20 and No. 22 gauge second-hand corrugated sheets painted black two sides, free from nail holes. Price per square, $2.45.

Also a quantity, same as above, with occasional nail holes, suitable for siding. Price per square, $2.10.

1000 squares of No. 28 galvanized corrugated full size new roofing. Per square, $3.65.

2000 squares IMITATION BRICK PRESSED STEEL SIDING. Per square, $2.40.

800 squares of PRESSED STEEL CEILING. Per square, $3.40.

PREPARED FELT ROOFING.

2-ply "Eagle" brand felt. Per roll, $1.15.
3-ply "Eagle" brand felt. Per roll, $1.35.
VULCANITE asphalt roofing. Per roll, $1.50.
Other grades also.

ROOFING GLASS.

¼ inch thick ribbed roofing glass from the Pan-American Exposition Buildings. Per square foot, 5 cts.

CONDUCTOR PIPE.

10,000 ft. of square corrugated conductor pipe, size 6 inch. Per foot, 6 cts.

10,000 ft. of ROUND, sizes 4, 5 and 6 inch. Per foot, 5 cts.

Also eave trough and fittings.

RADIATION.

100,000 ft. second-hand cast-iron radiation. Per foot, 18 cts.

200,000 ft. second-hand wrought-iron radiation. Per foot, 16 cts.

Also valves, heaters and all necessary apparatus.

ROPE AND TWINE.

We give you an opportunity to make purchases from us of items in this line at extremely low prices. We bought several carloads at sale. Our stock represents, among other things, sewing twine, flour-sack twine, hemp twine, wrapping twine, tube rope, seaming cords, steam tarred lath yarn, manila rope, sisal rope, etc. Most of this material is in very good condition, and on original coils and balls. WRITE US YOUR WANTS OR SEND FOR STOCK LIST.

HORSESHOES.

Our stock of new perfect horseshoes ranges in size from 0 to 8 fronts and hinds, in all shapes and weights, steel and iron. PRICE PER TON, $52.

300 kegs MULE SHOES, Nos. 4 and 5. Price per ton, $42.

HORSESHOE NAILS, sizes 5 to 9. Price per pound, 7¾ cents.

WOOD-SPLIT PULLEYS.

In stock 350 pulleys, ranging in diameters from 36 to 96 inch. Any size face required. DISCOUNT 80 per cent. off Standard List.

We also have smaller size wood pulleys, and a complete assortment of IRON PULLEYS.

LEATHER BELTING.

We have the following lengths of high-grade rebuilt second-hand leather belts, fully guaranteed, and which we agree to bring back at our expense if not found perfectly satisfactory:
120 feet 12-inch double. Price $132.
90 feet 18-inch double. Price $160.
100 feet 10-inch double. Price $95.
350 feet 8-inch double. Price per foot, 80 cts.
500 feet 6-inch double. Price per foot, 56 cts.
Will cut belts to any length required. Write us your BELT wants.

RELAYING RAILS.

For prompt delivery: 8, 12, 16, 20, 25, 30, 35, 40, 50, 60 and 70-pound rails.

VALVES.

250 iron-body, brass-trimmed Gate, Check, Globe and Angle valves, ranging in size from 3 to 16 inch. They are second-hand, overhauled and in first-class condition. Write us your wants.

ENGINES.

12x30 Hamilton Corliss.
30x60 Fraser & Chalmers Corliss.
22x48 Allis Corliss.
22x48 Wheelock Corliss.
16x42 Allis Corliss.
16x38 left-hand Corliss.
15x30 Buckeye.
15½x15 Armington & Sims.
14x15 Armington & Sims.
14x20 Rice.
16x24 Atlas.
13x12 New York Safety.
14x13 Armington & Sims.
10½x12 Armington & Sims.
9½x12 Armington & Sims.
16x16 Hendy.
16x16 Rice.
7½x10 Hendy.
14x24x14 Westinghouse.
13x30x16 Westinghouse.
13x22x13 Westinghouse.
11x19x11 Westinghouse.
1 90 H. P. Otto gas engine.
1 50 H. P. Lambert gas.
1 50 H. P. Lewis gas.

BOILERS.

Our stock of boilers is the largest we have found anywhere on earth. We list a few as follows:
60x18 triple butt strap riveted, 150 lbs. pressure.
3 250 H. P. Heine.
1 250 H. P. Campbell & Zell.
1 125 H. P. locomotive fire box.
1 100 H. P. locomotive fire box.
1 70 H. P. locomotive fire box.
3 50 H. P. locomotive fire box.
1 50 H. P. Erie City Economizer.
1 40 H. P. Erie City Economizer.
3 40 H. P. fire box.
2 30 H. P. fire box.
1 25 H. P. Erie City Economizer.
3 25 H. P. locomotive fire box.
3 20 H. P. fire box.
2 15 H. P. fire box.
1 54x7½ vertical.
1 60x10 tubular submerged type, vertical.
1 54x6 vertical tubular.
1 48x10 vertical tubular.
1 42x7 vertical tubular.

HORIZONTAL TUBULAR BOILERS.

4 66x16.
2 60x18.
1 72x14.
3 60x16, domeless, high pressure.
2 60x14.
4 54x16.
3 54x15, domeless.
1 54x14.
1 54x12.
3 48x16, domeless.
3 48x16.
3 48x14.
4 48x12.
1 48x10.
42" boilers, from 10 to 16 feet.
36" boilers, from 10 to 16 feet.

ROCK DRILLS.

1 1¾" Bullock Monarch drill, fitted for air or steam.
4 2" Bullock Monarch drills, fitted for air or steam.
2 2¾" Bullock Monarch drills, fitted for air or steam.
4 3½" Bullock Monarch drills, fitted for air or steam.
1 U-A Sullivan for air.
2 U-C Sullivan for steam.
3 U-E Sullivan for steam.
1 U-E No. 2 Sullivan for steam.
7 2¾" Rand "Little Giant."
3 3" Rand "Little Giant."
2 3½" Rand "Little Giant."
1 2¾" Ingersoll for steam.
3 3¾" Ingersoll for steam.
3 3 1-16" Ingersoll for steam.
3 3¼" Ingersoll for steam.
1 Bullock Champion diamond prospecting core drill, with complete outfit, boiler and pump.
1 Sullivan "M" diamond prospecting core drill, with complete outfit, boiler and pump.
1 Sullivan "E" diamond prospecting core drill, with complete outfit, bit set with eight (8) pieces of carbon.

REFRIGERATING MACHINERY.

1 15-ton ice, 30-ton refrigeration.
1 10-ton ice, 20-ton refrigeration.
1 5-ton ice, 10-ton Barber refrigerating machine.
4 small belt-driven refrigerating machines.

MISCELLANEOUS MACHINERY.

1 No. 9 Sturtevant blower.
1 No. 7 Sturtevant blower.
1 No. 6 Sturtevant pressure blower.
1 No. 5 Buffalo pressure blower.
1 20x8 6-head turret lathe, hollow spindle.
4 250 H. P. separators and purifiers.
5 5x8 double-drum double-cylinder hoisting engines and boilers.
7 6½x8 double-drum double-cylinder hoisting engines and boilers.
1 10x12 double-cylinder single-drum Lidgerwood, without boiler.
1 15 H. P. combined hoisting engine and boiler.
Foot-power lathes, all sizes. Machine tools of every description. Woodworking machinery.
24x12x24 steam-driven straight-line compressor.
20x24x24 National compressor.
12x12 Snyder-Hughes belt-driven compressor.
6x6x10 vertical compressor.
7x8-7x8 duplex vertical compressor.
1 7x7 Clayton.
1 screw punch, hand-power.
1 power milling machine.
1 Universal gear-cutter.
1 Universal keyseating machine.
3 Baker blowers, 15" inlet, 15" outlet.
1 Root blower, 10" inlet, 10" outlet.
1 hand-power hoisting sidewalk elevator.
1 24" Lafell wheel.
1 15", 16", 19" vertical drill press.
1 wire straightener.
1 vertical belt-driven 9-ton crane. Write for particulars.
5 worm-gear belt-driven elevators.
2 Reedy steam-driven elevators, 2 Crane and 1 Elthrophe.
3 double buffing stands.
1 belt-driven power hammer.
1 26" slotter.
15 belt tighteners, various sizes.
42x8½ steel tanks. Smaller tanks of all sizes.
2 12" vertical centrifugal pumps.
1 12" horizontal centrifugal pump.
1 12" horizontal sand pump.
1 6" sucker.
3 18x12x18 single Davidson pumps.
3 16x10½x10 Worthington duplex.
Pumps of all sizes and for all duties.
2 electric elevators, complete, with 15 H. P. Keystone motors.
4 passenger elevator cages.
9x16 Groton crusher, with elevator and screen complete.
1 1000 H. P. Berryman copper-tube heater.
1 800 H. P. Berryman copper tube.
1 400 H. P. Erie City.
1 300 H. P. Wainwright.
1 250 H. P. Wainwright.
3 150 H. P. Berryman.
3 100 H. P. Baragwanath.
1 50 K. W. Westinghouse alternator.
1 50 K. W. Fort Wayne alternator.
1 45 K. W. Edison Bi-Polar direct.
1 30 K. W. Edison Bi-Polar direct.
1 20 K. W. Edison Bi-Polar direct.
1 Ingersoll-Sargeant under-cutter.

CATALOGUE NO. 239 MAILED TO BRAINY MERCHANTS.

CHICAGO HOUSE WRECKING CO.

W. 35th and Iron Streets, CHICAGO.

FOR SALE.

We own a choice lot of

RELAYING

25 lb. and 30 lb. STEEL RAILS

and Splice Bars and Spikes for same. Also a number of Frogs, and Stub and Split

SWITCHES.

If you want to buy either new or re-laying Rails—any weight, or Switches, write us.

ROBINSON & ORR,

419 Wood Street, Pittsburgh, Pa.

FOR SALE.

Boilers.

Two 70 H. P. Hor. Return Tubular. Two 65 H. P. Locomotive. One 25 H. P. Locomotive. One 25 H. P. Vertical. One 20 H. P. Vertical. One 10 H. P. Vertical.

Engines.

One 7x8 Vertical. One 10x12 Horizontal. One 12x24 Horizontal. One 12x28 Horizontal. One 14x24 Horizontal. One 18x24 Horizontal. One 10x14 "Buckeye" Automatic. One 13x15 "Ide" Automatic. One 15x18 "Ide" Automatic. Two 10x12 "Ball" Automatic.

Also a lot of Pumps. Hoisting Engines, Motors, Rails, Pipe, Wood Working Machinery, Shafting, Hangers, Wood and Iron Pulleys.

ALL AT BARGAINS.

Huntington Machinery & Supply Co.

WILKES-BARRE, PA.

FOR SALE.

1	300 H. P. Cross compound Slater engine,	$3000.00
1	18x42 Harris Corliss, overhauled	1200.00
1	12x36 Corliss, overhauled	750.00
1	Iron stack, 52x36	150.00
1	12x18 Skinner engine	300.00
1	14x16 Porter engine, overhauled	350.00
1	34x60 Geo Corliss, with balance wheel, July del.	
1	30x60 Geo. Corliss, with balance wheel, July del.	
1	Corliss segment wheel 16'x60" face.	
1	20x42 Woodruff and Beach Auto	500.00
1	15x38 Brown Automatic	750 00
1	11x30 Putnam Automatic	400.00
2	Hydraulic presses, 8" rams, 48x36" platens.	
1	300 to 400 H. P. Quill, practically new, including boxes.	
2	60x16 H. T. boilers, brand new tubes. $300 each.	
2	tanks, 9' diameter, 8' deep, 3/8 shell, $85 each.	
2	tanks, 18' long, 9' wide, 6' deep, shell 1/4" thick.	

F. H. DAVIS & CO., 53 State St., Boston.

Baker, Stillwell & Hart

Manufacturers' Agents,

Room 421 Chalifoux Building,

BIRMINGHAM, ALABAMA.

Pig Iron,	Rails,	Fire Brick,
Bar Iron,	Nuts and Washers,	Babbitt Metal
Coal,	Bolts,	Tool Steel,
Coke,	Nails,	Engines,
Steel Shapes,	Foundry Supplies,	Boilers,
Cars,	Car Wheels,	Castings,

Second-hand Machinery of all kinds.

For Sale—Delivery Jan. 1, 1904.

Two Friction Rope Haulage Machines, 300 and 250 H. P. respectively.

Four miles, one inch, seven strand wire rope.

One 600 light, G. E. Generator and Switchboard.

One 75 H. P. Harrisburg Engine, all complete.

200 ft. 10 in. wrought iron pipe.

This machinery all in splendid condition and has only been in use about two years. Reason for selling, not large enough to handle tonnage, and are replacing with heavier.

For further information apply

COLLINS COLLIERY CO.

Glen Jean, W. Va.

FOR SALE.

Five Blowing Engines.

36" Steam Cylinder, 84" Air Cylinder, 54" Stroke.

Engines were built by Cuyahoga Engine Works and can be seen in operation at our plant at Columbus, Ohio. Can be delivered about Sept. 1st.

The Columbus Iron & Steel Co.

COLUMBUS, OHIO.

FOR SALE.

We have over 300 assorted size Machine Tools of every description.

Send us your wants.

Girard Machine & Tool Co.

491 N. Third Street, PHILADELPHIA, PA.

FOR SALE.

BRIDGES.

1 50 ft. steel plate girder bridge, double track.

1 500 ft., 4 spans 125 ft. each, riveted pier bridge, double track, 24 ft. wide. Viaduct joining pier 570 ft. double track.

CARS.

73 80,000 lb. hopper bottom ore cars

100 tons 80-lb. Relaying Steel Rails.

HENRY A. HITNER'S SONS,

Aramingo Ave. and Huntingdon St.

PHILADELPHIA, PA

FOR SALE.

Door, Sash & Blind Machinery.

1 E. B. Hayes Machine Co. Door Sticker. 1 E. B. Hayes Machine Co. Sash Rail and Stile Sticker. 1 E. B. Hayes Machine Co. Sash Bar Sticker. 1 Greenlee Bros. & Co. Sash and Blind Relisher and Mortiser, without Blind Routing Attachment. 1 H. B. Smith Machine Co. Improved Sash Clamp. 1 Diagonal Planer.

CYPRESS LUMBER CO.

Apalachicola, Fla.

WANTED.

BAND WHEEL,

9 feet diameter, 30 inch face, 7¼ inch bore; weight about 10,000 pounds. Advise immediately.

Box L, Station B, Cincinnati, O.

FOR SALE.

Drain or Culvert Pipe.

125 lengths of 30" cast iron pipe, practically as good as new, at Charleston, S. C.

Frank Samuel,

Harrison Building, PHILADELPHIA, PA.

WANTED.—To sell Tobacco Re-drying Machinery, Truck System, complete and almost new. Special bargain for next thirty days. W. F. STACKHOUSE, Secretary, Marion, S. C.

FOR SALE.

Two hundred and fifty tons of new forties; two hundred and fifty tons new thirties; one 16" cyl. Roger Locomotive, good condition; one 15" cyl. Baldwin Locomotive, good condition; one 15-ton stand. gauge Locomotive, for wood or iron rails; two 28-ton 14" cyl. stand. gauge Locomotive, fine condition. Apply

SABEL BROTHERS,

Jacksonville, Fla.

Portable Quarters for Contractors and Railroad Workmen.

We can furnish immediate shipment of 36" gauge Box Cars in elegant condition, at prices competitive to building huts for workmen. Sanitary advantages innumerable. Such houses could be moved at completion of each contract to new field of operation. Free transportation furnished interested parties for inspection of these cars from Chicago. Have also Cabooses, Refrigerator, Stock and Flat Cars.

Walter A. Zelnicker Supply Co., In St. Louis,

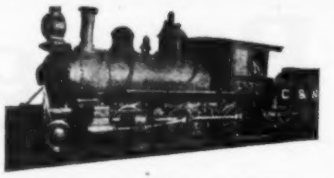
Branches—Chicago, New Orleans, Mobile, Houston and Seattle.

FOR SALE.—Engines—14-horse Russell traction, $500. Twelve horse traction $300. Thirty horse portable boiler, $200. Fire engine, Cole Bros. make, practically new, $500. Stationary, portable, tubular, vertical, boilers and engines all sizes. Ten horse boiler and engine on wheels, $125. Thirty-five horse new Scotch boiler, $300. New 20 horse engine, $150. Slide valve engines, forty, fifty and eighty horse power. One 48" Stedman disentegrator $250. One 5" Air Compressor, $85. Four sawmills. 30" drill press, back geared. One hundred different machines consisting of boilers, engines, lathes, drills, heaters, pumps, at one-third their actual value.

D. L. CASEY MACHINE Co., Springfield, Ohio.

FOR SALE—MACHINERY—Second Hand Circular Saws good as new, from 48 to 62 inches. Let us know what size you wish to trade. One second hand Self-feed Bolter, one second hand Pony Saw Mill, one second hand Double Saw Mill, one 20 H. P. Portable Engine, one Knight's U Mill, one Knight's T Mill, one 20 inch Fay Knife Grinder, two Fay Tenoners, one Fay Mortiser one 42 inch Wheel Jointer, two 8 ft. Self-feed Bolters, six Steam Pumps, one 10 H. P. Engine, three Column Emery Wheel Standing, twenty-five Polishing Machines, one Bed Rail Machine, one Rouit's Dovetailer and Shaper, one Double Shaper, one 24 inch Hand Jointer, one Fay Surfacer, one Self-feed Rip Saw, one Fay Variety Saw, Five Engine Governors, one Variety Wood-worker. One Cordesman 36 Band Saw.

THE MILLER OIL & SUPPLY CO., Indianapolis, Ind.



BOWEN & STREET EQUIPT. CO.

HAVE FOR SALE

30 STANDARD AND NARROW GAUGE LOCOMOTIVES

for contractors' plant, lumber and mining railways, and over 200 flat, box and logging cars, coaches and large quantities of new and second-hand rail; also Steam Skidders; low rates to all points south.

OFFICE: 600-601 CITIZENS BANK BLDG., NORFOLK, VA.

SHOPS AT **Suffolk, Va.**

FOR SALE.

17 NEW 36" gauge 30,000 lbs. capacity

Flat Cars

For Prompt Shipment.

Kilby Locomotive & Machine Works,

ANNISTON, ALA.

For Sale — RAILS.

53 tons 85-lb. New Steel T Rails and Splices.
27 tons 75-lb. New Steel T Rails and Splices.
15 tons 70-lb. New Steel T Rails and Splices.
100 tons 30-lb. New Steel T Rails and Splices.
20 tons 20-lb. New Steel T Rails and Splices.
200 tons 16-lb. New Steel T Rails and Splices.
50 tons 12-lb. New Steel T Rails and Splices.
20 tons 8-lb. New Steel T Rails and Splices.
400 tons 60-lb. Relaying. 150 tons 70-lb. Relaying

RICHARDSON & CO., Inc.

300 Ninth Street. PITTSBURGH, PA.

RAILS.

LIGHT SECTIONS, 8 TO 40 POUND.

Special Price to Dealers.

UNION RAIL COMPANY,

Farmers Bank Building, PITTSBURG.

FOR SALE.

NEW STEEL RAILS.

12, 16, 20, 30, 35 and 40 lbs., with splice bars, bolts and spikes. Immediate shipment from stock.

JOHN J. HAMEL & CO.

House Building. PITTSBURGH, PA.

Alabama Frog & Switch Co.

ANNISTON, ALA.

Manufacturers of

Railroad Crossings, Frogs,

Switches, Switch Stands, Rail Braces, Etc.

SAW MILL.

Seven Fay No. 2 Centennial 24-in. planers; one 32-in. Egan No. 1 automatic knife grinder; one 24-in. planer, L. Power & Co.; one 11x12 Alfree automatic engine; two 60 H. P. boilers; two 80 H. P. boilers; one 5x7 hoisting engine with boiler and drum; several thousand feet 5/8 and 1/2 steel rope, shafting, pulleys, hangers, belts; dust arrester, feed water heater, dynamo, several engines, etc.

Address STONY CREEK LUMBER CO.

TACOMA, VA.

FOR SALE.

A Fairbanks Gas and Gasoline Engine

25 HORSE POWER.

Now in use. All in good running order.

A. D. RUNYON, Millington, N. J.

We Buy or Sell Steam and Electrical Machinery.

Write us for your wants.

For Immediate Delivery.

12x12 Ball Automatic Engine, fine order, **$400**

1 50 Arc Light Western Electric Dynamo, **$300**

1 45 Arc Light Western Electric Dynamo, **$250**

All kinds of Arc Lamps at rock bottom prices.

J. W. KOHN & CO.

14 Merwin St., Cleveland, O.

For Sale—**RAILS**—Wanted for Cash.

Cars, Locomotives, Engines, Boilers, Generators, Motors. $500,000 worth listed in ***JOHNSON'S EQUIPMENT BULLETIN.*** Write for copy No. 7.

Charles F. Johnson, 908 Ellicott Square, Buffalo, N. Y.

FOR SALE.

Five American Type Standard Gauge LOCOMOTIVES.

IN EXCELLENT CONDITION.

2 17"x24" Taunton Make.
2 16"x22" Baldwin Make.
1 17"x22" Mason Make.

We are offering these locomotives at a very low figure being desirous of moving them quickly. If you are in the market for equipment of this kind we would be pleased to have you write us for specifications and photographs.

Correspondence solicited.

CAINE & PLITT,

1406 Real Estate Trust Building,

PHILADELPHIA, PENNA.

Long Distance 'Phone.

CONTRACTORS' MATERIAL, FOR SALE OR RENT.

One Marion style "A" shovel with 1¼ yd. dipper.
One traction shovel, built in March, 1903, with 1½ yd. dipper, No. 594.
One Byers geared 36" gauge locomotive, weight about 7 tons.
One 10x12 standard gauge Baldwin dummy type locomotive.
One 7x12, 42" gauged, also 8x16, and other gauges.
Two traction engines, 18 H. P. each.
One traction engine, 12 H. P.
11 wheel scrapers No. 1, 4 No. 3.
5 Austin dump wagons, 1½ yd., iron axle.
150 picks, 150 shovels, Kirk battery, chains, tool boxes, etc.; 12 36" gauge dump cars; 25 42" gauge dump cars; 25 30" gauged flat cars
Also a lot of other material too numerous to mention. Correspondence solicited.

HARPER MACHINERY CO.

Main Office, Park Row Bldg., New York.
Yards & Shops, Newark, N. J.

LOCOMOTIVES.

50-ton Freight and Switch Engines for prompt delivery.

RAILS AND CARS.

MAY & SPALDING,

ATLANTA, GA.

For Sale—Rails and Locomotives.

One 20x24 Baldwin consolidation.
One 19x24 American type.
Two 15x24 American type.
One 18x24 Mogul.
One 16x24 Mogul.
Three 17x22 six-wheel switchers.
Five 12x14 Forney type.
One 12x16 Forney type.
One 9x14 four-wheel.
One 12x22 four-wheel saddle tank.
One 12x18 four-wheel, with front truck, trailing tender. All standard gauge.

In 3-ft. gauge Locomotives we have:

One 12x18 Forney type.
One 9x14 six-wheel saddle tank, with fuel tender.
One 7x12 four-wheel saddle tank.
One 8x16 four-wheel saddle tank.
Also new and relaying rails of all weights.
Write us for prices and terms.

BIRMINGHAM RAIL & LOCOMOTIVE CO., Birmingham, Ala.

NEW LIGHT STEEL RAILS.

12 lb. to 40 lb. per yard and Splices.
New Heavy Sections to 80 lb.
Narrow Gauge Railway Equipment.
Cars, Locomotives, Switches, etc.

WONHAM & MAGOR,

Columbia Building, NEW YORK.

FOR SALE.

Four miles 30-lb. Steel, with angle joints; two-thirds never used, rest lightly.
Little Giant Crane Traction Shovel, 1¼.
Western all steel Road Grader.
New Era Sr. Steel Level Grader.

THE MALES CO.

256 Broadway, NEW YORK CITY.

RAILS—LOCOMOTIVES.

400 tons 35 and 40-lb. steel relay rails.

Locomotives—Narrow and standard gauge. 50 locomotives on hand.

Southern Iron and Equipment Co.

ATLANTA, GA.

Locomotives and Cars for Sale.

One 14-ton Baldwin, rear tank, standard gage.
One 25-ton Baldwin, side tank, standard gage.
One 17-ton Climax geared, steel rails, 36" gage.
One 25-ton Heisler geared, 36" gage.
Twelve Climax Logging Cars, steel rails, 36" gage.

THE EDGAR S. LOW CO.

Empire Building, PITTSBURGH, PA.

Relaying Rails For Sale.

IMMEDIATE DELIVERY.

250 tons 52-lb. Steel Tee Rails with Angle Plates.

1000 tons 58-lb. Steel Tee Rails with Angle Plates, Tidewater delivery.

GEORGE H. CAREY, 1 Broadway, New York.

MANUFACTURERS

Light Steel Rails

16-20-25-30-35 and 40 lbs. per yard.

Prompt shipment on all orders.

SCHONTHAL IRON & STEEL CO.

Mills and General Offices,

CUMBERLAND, MD.

FOR SALE.

36" Gauge Equipment.

3 Locomotives, Mogul Type, in good condition, one 12"x16" Cylinder and two 13"x18." Builder, H. K. Porter. A lot of Box Cars. All for delivery in June or July.

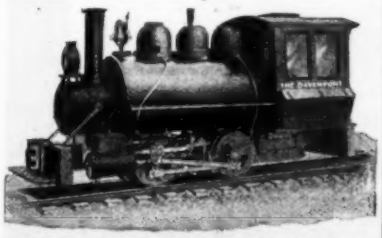
3 Passenger Coaches.
1 Combination Baggage and Passenger Coach.
Immediate Delivery.

Standard Gauge.

We also offer, for immediate delivery, second-hand standard gauge Locomotives from 13" to 18" cylinders, American and 10-Wheel Type. Relaying Rails.

SAVANNAH LOCOMOTIVE WORKS & SUPPLY COMPANY,

Savannah, Ga.



NEW LOCOMOTIVE Quick Shipment

36-in. gage Saddle Tank, 9x14 cylinders, 14 tons.

CHARLES F. AVERY, 32 Broadway, N. Y.

N. Y. Elevated R. R.

LOCOMOTIVES

Ready for Immediate Delivery.
Excellent Condition.

4' 8½" Gauge, Forney Type, Cylinders 11"x14," 11"x16," 12"x16."

Suitable for Logging Roads, Contractors, Switching, &c.

BENJAMIN WATSON,

(Coffee Exchange Bldg.)
68 to 70 Beaver Street, N. Y. CITY.

Steel Rails, Cars, Locomotives, R. R. Supplies.

NEW STEEL RAILS.

We have a large quantity of steel, A. S. C. E. section, various weights, with or without fastenings, for immediate or future delivery. Also have "seconds" for sale.

O. W. DAVIS & CO., 68 Wall St., New York City.

R. S. ARMSTRONG & BRO.

ATLANTA, GA.

IRON BROKERS,

And dealers in New and Second-hand Machinery. Also carry in stock Hoisting Outfits and Light Section Rail for contractors' use.

FOR SALE.

New Light Steel Rails,

ALL WEIGHTS,

WITH

Track Fastenings.

THE STEEL RAIL SUPPLY CO.

100 Broadway,

NEW YORK, N. Y.

RAILS FOR SALE. Immediate Shipment.

500 tons 80-lb. Relaying Steel Rails with Angle Splices, Pennsylvania delivery.
800 tons 60-lb. Relaying Steel Rails with Angle Splices, Indiana delivery.
500 tons 40-lb. Relaying Steel Rails with Angle Splices, Ohio & Penna delivery.
700 tons 70-lb. Relaying Steel Rails with Angle Splices, Ohio delivery.

Also NEW 16, 20, 25, 30 lb. Rails for prompt shipment.

We BUY good Relaying Rails for cash. Write us if you have any to offer.

HYDE BROS. & CO.

503 German Natl. Bank Bldg. PITTSBURG, PA.

NEW RAILS.

12,500 tons New Steel T Rails, 60, 70, or 80 lbs. per yard. July and August delivery.

Railroad Construction.

Steam and Electric Roads Built and Financed.

JUSTICE COX, JR., & CO., LIMITED,

552-554 Bullitt Bldg., Philadelphia.
156-158 Broadway, New York City.

FOR SALE.

Several Narrow Gauge Engines 10 to 20 tons; also standard from 40 to 60 tons. 1 16x24 Switcher in splendid condition. Stationary Boilers and Engines. 1 Perkins Shingle Machine as good as new. Agent for the Russel Wheel and Foundry Co. Cars. Also the Parker Steam Skidder.

J. H. MACLEARY & CO.
Suffolk, Va.

J. E. FRANKS

SAVANNAH, GA.

RAILS, CARS and LOCOMOTIVES, FROGS, SWITCHES, Etc.

FOR SALE.

9 Box Cars, 54 ft. long, 60,000 lbs. capacity. 1 200 H P. Hamilton Corliss Engine. 400 tons 56 lb. and 60 lb steel re-layers with splices. 350 ton 67 lb. steel re-layers and splices. 300 tons 30 lb. steel re-layers and splices, for South Carolina delivery. Also New Rails, 8 lbs. to 40 lbs.

L. WOLF & BRO.,
50-51-52 Mitchell Bldg., CINCINNATI, OHIO.

MANUFACTURERS

Light Steel Rails,

12, 16, 20, 25, 30 and 35 lbs. with splices.
Prompt delivery.

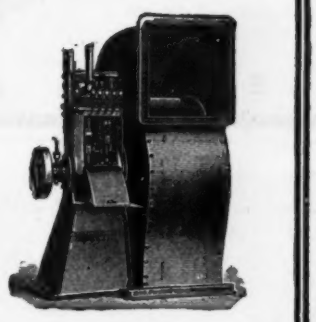
Maryland Rail Co.

CUMBERLAND, MD.

STURTEVANT SYSTEM

MECHANICAL DRAFT

Saves cost of chimney.
Burns cheap fuel.
Increases boiler capacity.



ALSO

Blowers
Exhausters
Steam Fans
Electric Fans
Engines
Electric Motors
Generating Sets
Forges
Exhaust Heads
Steam Traps
Heating
Ventilating and
Drying Apparatus

156

B. F. STURTEVANT Co. BOSTON.
NEW YORK · PHILADELPHIA · CHICAGO · LONDON.

LOCOMOTIVES

For all Classes of Service.

CARS — COACHES

SPECIAL
- 40 to 50 ton Moguls—40 to 51 inch centers.
- 50 ton Baldwin Eight Wheelers.
- 60 ton Baldwin Consolidations.
- 30 ton Consolidations—31 inch centers.
- Passenger Coaches—excellent condition.
- Immediate delivery.

FITZ-HUGH—LUTHER CO.

Successors to Fitz-Hugh & Co.

NEW YORK, 141 Broadway. Main Office, CHICAGO, Monadnock Block.

HICKS LOCOMOTIVE AND CAR WORKS.

LOCOMOTIVES, COACHES AND CARS

of all descriptions.

F. M. HICKS,

277 Dearborn St.
CHICAGO.

LOCOMOTIVES 6 American type 30-40 tons, Std. Gage; 2 10-wheeler type 40-50 tons, Std. Gage; 1 Consolidation type 55 tons, Std. Gage; 2 Switching type 30-40 tons, Std. Gage; 3 9x14" cyls. S. T. 12 tons, 36" Gage

STEAM SHOVELS 1 Marion G, 2½ yard; 1 Vulcan, 2 yard (new); 2 Southers 2 yard; 1 Marion AA 1¾ yard, others; 2 45 ton Bucyrus, 1½ yard.

CARS 20-25 tons, Flats and Boxes. 80-3 yard, 2 way dumps.

APEX EQUIPMENT CO.
7-9 Broadway, N. Y.

FOR SALE.

Four (4) 18"x22" Cylinder Baldwin, ten-wheel Freight Standard Gauge Locomotives, weight about 42 tons; six drivers, 50" diameter; separate eight-wheel tender.

One (1) 14"x22" Cylinder, Baldwin six-wheel Locomotive (four drivers 50" diameter, pony truck in front, with separate eight-wheel tender.

Twenty (20) Flat Cars, 30' long, 20 tons, capacity, Diamond Trucks, M. C. B. Automatic Couplers, hand brakes.

Twelve (12) Coaches, 51' over all; carry 54 passengers; good coaches; cheap.

Two (2) Baggage Cars, same length; carry 28 passengers; all equipped with Westinghouse Air Brakes.

NEW YORK EQUIPMENT COMPANY,

18 Broadway (Room 526), New York.

FOR SALE.

STANDARD GAUGE PRIVATE HORSE OR STOCK CAR, adjustable stalls for carrying sixteen heads, complete in every detail, in first-class condition.

BALDWIN STANDARD GAUGE DUMMY LOCOMOTIVE, 9x12. Has been thoroughly overhauled and put in first-class condition.

Both of the above will be sold at a low price.

POULTERER & CO.

410 Bullitt Building, PHILADELPHIA, PA.

FOR SALE.

300 tons 60¼-lb. steel relaying rails with angle bars, Alabama and Georgia delivery.

900 tons 70-lb. steel relaying rails with angle bars, Ohio delivery.

500 tons 48-lb. steel relaying rails with angle bars, Ohio delivery.

Second-hand locomotives, coaches, steam shovels, and other railway and contracting material.

THE ISAAC JOSEPH IRON CO.

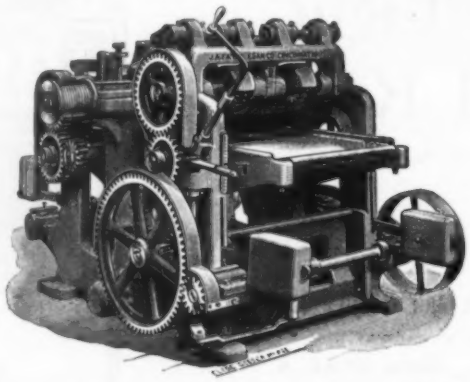
525-531 Hunt St., Cincinnati, Ohio
522-524 Monadnock Block, Chicago, Ills

NEW SINGLE CYLINDER PLANER.

We make a complete line of machines for working wood. Can furnish them in single tools or entire equipments, smallest to largest sizes made.

All progressive wood-workers are invited to write us about any machines they may feel interested in; full particulars on demand. New Catalogue free.

Send for new Sander Book and Pamphlet on the care of band saws. Both new, fully illustrated, and useful to all users of sanders and band saws.



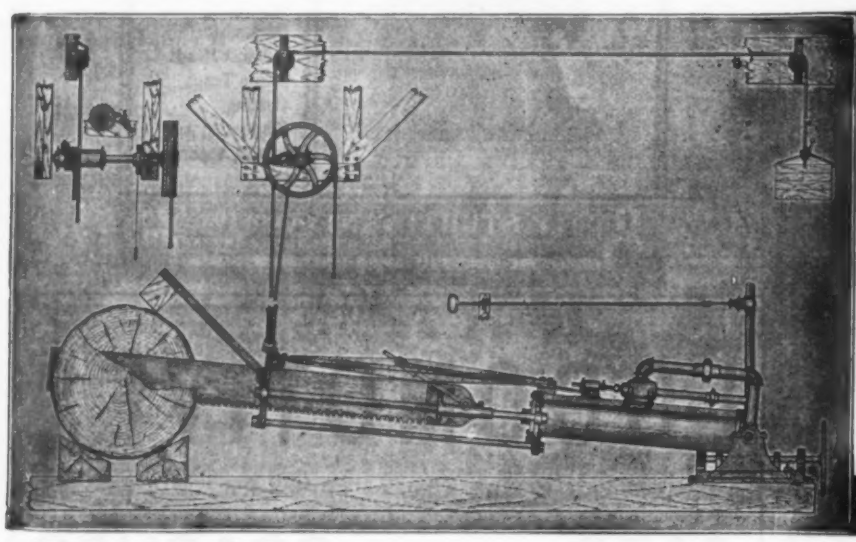
No. 29 New Single Cylinder Planer.

(Patented Dec. 19th, 1899; Feb. 6th, 1900.)

A fine new planer for general work, designed for all wood-working mills and factories, where a good machine can be used to advantage.

It has just been introduced on the market, and has many improved features, among which this one is one of the most important: The feeding-in roll is made in sections, and each is center-geared, so two or more pieces of uneven thickness can be planed at once, and each receive an even pressure; the roll makes any variation desired.

J. A. FAY & EGAN CO., 270-290 W. Front St., CINCINNATI, OHIO.



PLAIN TALES FROM THE HILLS

(NOT BY KIPLING.)

LOWELL M. PALMER—the greatest manufacturer and user of cooperage stock in the world—says: "The manufacturer of cooperage stock who uses

A HILL DIRECT ACTING STEAM DRAG SAW

has a decided advantage over the one who tries to get along without, because it is the fastest and most durable cutter and saves money in both power and labor."

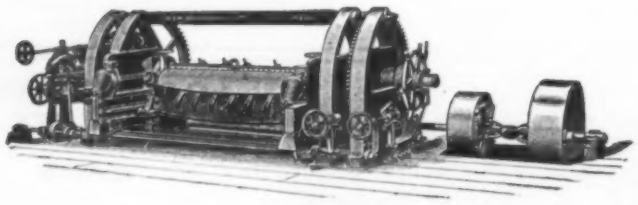
Wouldn't you like to know more of this machine? Write for catalog No. A, etc.

WM. E. HILL & CO.

North Park Street, KALAMAZOO, MICH.

More

Veneer Cutting Machines



of this type in every day use than all other makes combined. Why? They are extra heavy, well proportioned, easy to operate, have passed through the experimental stages, will do excellent cutting and lots of it, which means complete satisfaction—built to meet all practical conditions.

Complete Outfits for Basket, Package and Slack Barrel Stave Factories

ON SHORT NOTICE.

Write us your wants that we may quote you lowest price on strictly high-grade machines.

THE COE MFG. CO., Painesville, O., U.S.A.

—ESTABLISHED 1852.—

INDIA OIL STONES

INDIA OIL STONES SHARP AND QUICK

CUT FASTEST. WEAR LONGEST.

Will cut metal on which a file will slip. Every stone fully guaranteed.

Manufactured by THE NORTON EMERY WHEEL CO.

Are made in all Shapes and Sizes; coarse, medium and fine grades thus adapting them to ALL CLASSES OF WORK

SOLE AGENTS

THE PIKE MANUFACTURING CO.

PIKE STATION, N. H., U. S. A.

Sharpening Stones for Everything that has an edge.

CORDESMAN, MEYER & CO.

27, 29, 31 Central Avenue, CINCINNATI, OHIO.

FINE GRADES OF LATEST **WOOD WORKING Machinery** of Every Description.

VARIETY WOOD WORKER.

For . . . Planing Mills, Furniture and Chair Factories, Carriage, Wagon, Agricultural Works, Etc.

Write for Circulars and Prices.

E. E. TITUS, Founder and Machinist, Petersburg, Va.

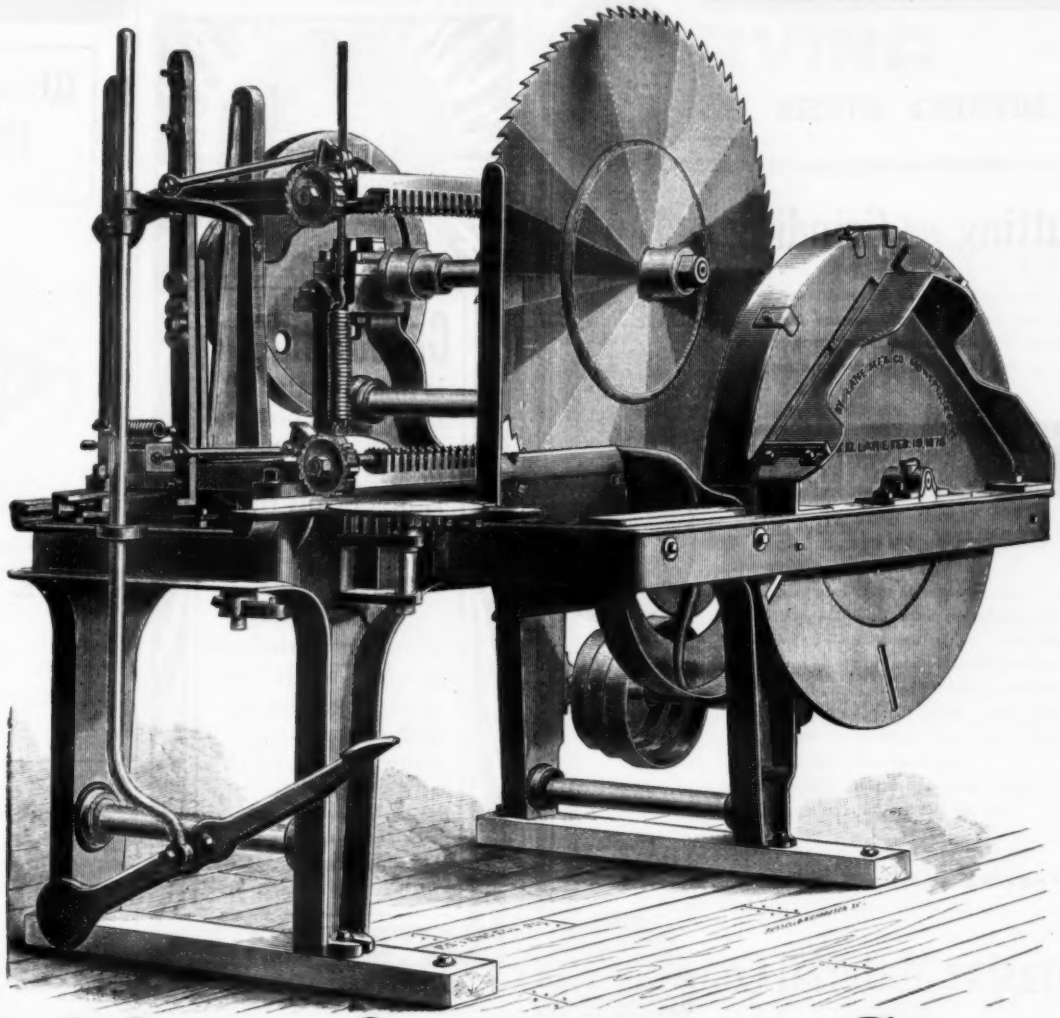
MANUFACTURER OF LATEST IMPROVED

Veneer Cutting Machines,

With Impression Rolls for BASKETS, ORANGE BOXES, ETC., ETC.

Butter Dish, Berry Box, Fruit Basket, Orange Box, California Grape Basket and Truck-Barrel Machinery a Specialty.

CONTRACTS TAKEN FOR COMPLETE OUTFITS.



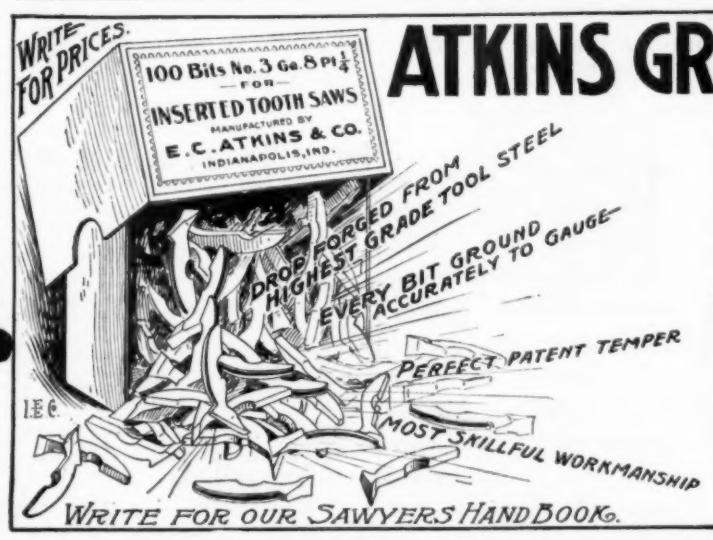
Lane Manufacturing Company

makes

Water Wheels, Planers, Traveling Cranes, Log Jackers, Log Canters, Log Niggers, Drag Saws, Swing Saws, Swing Trimmers, Timber C/O Saws, Live Rolls, Dead Rolls, Hand Feed Edgers, Power Feed Edgers, Hand Feed Table Trimmers, Power Feed Table Trimmers, Chain Feed Trimmers, Lath Machines, Lath Trimmers, Traveling Bed Single Surfacers, Traveling Bed Double Surfacers, Traveling Bed Timber Surfacers, Sounding Board Surfacers, Roll Feed Surfacers, Matchers, Cutting-Off Tables, Shingle and Heading Machines, Shingle Packers, Clapboard Machinery, Belt Tighteners, Car Trucks, Friction Clutch Couplings, Wood Rim Pulleys

And a Complete Line of Transmission Machinery.

MONTPELIER, VERMONT.



ATKINS GREAT "TALKING" POINTS

THE points of "SUPERIORITY" in Atkins Silver Steel Inserted Tooth Saws are as numerous as the points on a Porcupine's back and are as apparent. They point the way to better lumber, more satisfactory and economical production. Do you see the point?

E. C. ATKINS & CO., Inc.,

Mfrs. Saws of every description, Saw Tools and Machine Knives.

Factories, INDIANAPOLIS, INDIANA.

BRANCH HOUSES: No. 64 Reade St., New York City, Memphis, Tenn., Atlanta, Ga., Minneapolis, Minn., Portland, Ore., Toronto, Canada.

Notice This, Please!

Our Rotary Excelsior Machine makes a straight cut 16 inches long, 6 inches wide and of any thickness; the strands may be cut any width, 1-60 to 1-100 of an inch, thicker or thinner; has a capacity of 400 lbs. per hour; is simple, durable, strong and sure.

The American Excelsior and Machine Co., Baltimore, Maryland.

BEACH'S
Sawing Machinery.
H. W. BEACH, MONTROSE, PA.

DE LOACH MILL MFG. CO.
Manufacturers of
High-Grade Mill Machinery
ATLANTA, GA., and NEW YORK, N. Y.

Chattanooga Machinery Co.
Chattanooga, Tenn.
Manufacturers of
Saw Mill and Wood-Working Machinery.
Insulator Pin, Bracket and Cross-Arm Machinery.

Plow Handle
MACHINERY.
Write for Circular and Prices.
B. M. ROOT, YORK, PA

THE

DIFFERENCE BETWEEN

EMERY WHEELS

Cutting and Grinding

is just about equal to the work done by a good and poor workman—the former works fast and always satisfactorily, the latter slow and with always some fault.

"ABRASIVE"

EMERY WHEELS

are made of material that "cuts" rather than grinds; even the bond has cutting properties; unlike the wheels of twenty years ago when the bond had to be burned away by friction. They're found in every shop, mill, factory and lumber camp where quick and satisfactory work is demanded. They won't draw the temper of the tool, and work equally well under every condition met with in grinding.

THEY'RE SENT ON TRIAL

Abrasive Material Co.

PHILADELPHIA, PA.

THE MONARCH Emery and Corundum Wheel Company,

Manufacturers of

EMERY and CORUNDUM WHEELS.

The Greatest Saw Gummer and Knife Grinder Wheel in the World.

Factory and Main Office: 508- 514 Liberty St., Camden, N. J., U. S. A.

Emery Wheels

CORUNDUM WHEELS.

Polishers and Machinists' Supplies, Rub Stones, Emery Wheel Machinery, and Diamond Tools.

Will Run Wet or Dry. Vitrified Wheel Co., Westfield, Mass.

Carborundum

is made in the largest and hottest electrical furnace in the world. It is practically the diamond applied to industry—

Hardest
Sharpest
Longest Lasting

abrasive in the world—made into grinding wheels and sharpening stones of all sizes and shapes.

Write for the booklet.

THE

Carborundum Co.

Niagara Falls, N. Y.

HENCH & DROMGOLD'S

SAWMILL AND ENGINES

A wonderful improvement in **Friction Feeds** and **Gig-Back.** Back motion of Carriage **3 times** as fast as any other in the market. **Friction Clutch Feed,** causing all the feed gearing to stand still while backing; **great saving in power and wear.** Catalogue and prices free. Also **Spring Harrows, Cultivators, Corn Planters, Shellers,** etc. *Mention this paper.*

The Hench & Dromgold Co., Mfrs.

YORK, PA.

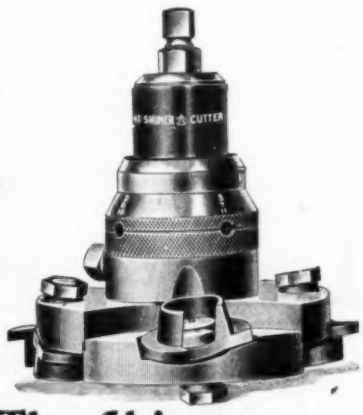
Wood-Working Machinery

FOR ALL PURPOSES.

QUALITY SMITH QUALITY

H. B. Smith Mach. Co.
Smithville, N. J.

BRANCHES: NEW YORK AND CHICAGO.

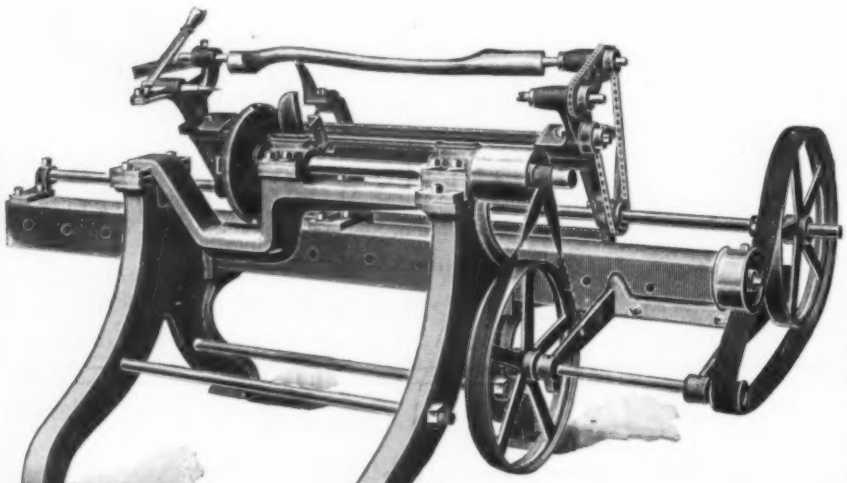


The Shimer Cutter Heads

with Expansion, for Flooring, Siding and Ceiling, do more good work with less labor and expense than will any other. They are ever ready for service and turn out positively uniform patterns. A fine adjustment for the Cutters is provided for by the expansion feature.

S. J. Shimer & Sons,

MILTON, PENNA.



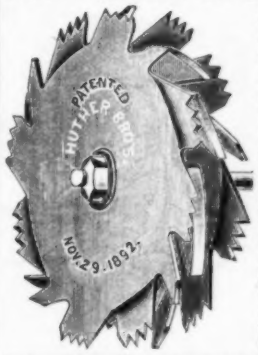
THIS CUT shows the No. 11 Ober Lathe for turning Axe, Adze, Pick, Sledge, Hammer and Hatchet Handles, Spokes, Whiffletrees, Gun Stocks, Shoe Lasts, &c. It is very simple, strong and durable, requires but very little power and is very easily and quickly changed from one kind of work to another.

We also manufacture other Lathes for making Spokes, Handles and Variety Work, Sanders, Shapers, Boring and Chucking Machines, &c., &c.

Complete Catalogue and Price List free.

OBER MFG. CO., Chagrin Falls, Ohio, U. S. A.

PATENT GROOVER OR DADO HEAD.



For cutting any width groove, from ⅛ inch in 2 in. or over. This groover consists of two outside saws, each of which is a groover to itself and as many inside cutters as required. The inside cutters are made 1-16, ⅛ & ¼ inch thick so that any width groove measurable in sixteenths may be cut. The outside cutters are made ⅛ inch thick. It will cut a perfect groove, either with or across the grain, and will not leave a rough edge as in the case with ordinary groovers.

Can be used on any Circular Saw Mandrel.

HUTHER BROS.

SAW MANUFACTURERS,

234 Mill Street, ROCHESTER, N. Y.

California Saw Works, San Francisco, Cal., Agents for Pacific Coast.

Gainesville Iron Works,

R. I. MEALOR, Mgr.

Stamp, Saw, Cane Mills, Mining and Mill Supplies.

Shafting, Pulleys, Architectural Iron Work, Founders and Machinists.

GAINESVILLE, GA.

INTERNATIONAL CREOSOTING AND CONSTRUCTION COMPANY,

Address all communications to Office, Galveston, Texas.

WOOD PRESERVING.

Send for Pamphlet.

WORKS: Beaumont, Texas. Texarkana, Texas.

Capacity 18,000,000 feet B. M. per Annum.
Capacity 57,000,000 feet B. M. per Annum.

CAPACITIES BASED ON 24-HOUR TREATMENT.

Timber treated with any of the best processes now in use.

PLAIN AND INLAID Parquetry and Hardwood Floors

FLOOR WORK EXCLUSIVELY.

Handsome, Sanitary, Economical.

J. Summerfield Smith & Co.

413 N. Charles St., BALTIMORE, MD.

PRICE & HEALD,

Manufacturers' Record Building, BALTIMORE, MD.

Specialty—Maple Flooring for Cotton Mills.

Manufacturers and Dealers in Hardwoods, Poplar, Pine, Red Gum, etc.

The Cushing Company

SUCCESSOR TO

J. W. BOND CO. Established 1848 AND CUSHING & CO. Established 1810

IS PREPARED TO FURNISH

Office, Bank and School Supplies OF EVERY DESCRIPTION

We can supply you with Desks, Furniture, Blank Books, Stationery, Printing, Lithographing, Engraving and everything you use for office work.

THE LARGEST STOCK OF BOOKS IN THE SOUTH

THE CUSHING COMPANY

14 W. Baltimore St. Baltimore, Md.

KIRBY LUMBER COMPANY,

MANUFACTURERS OF LONG AND SHORT LEAF

Yellow Pine Lumber,

ROUGH AND DRESSED.

We can furnish long lengths and large sizes on short notice.

S4S up to 20"x30".

MILLS AND PLANERS AT

BEAUMONT,	CALL,	ROGANVILLE,	WOODVILLE,
ORANGE,	LILLARD,	ARIOLA,	FUQUA,
SILSBEE,	KIRBYVILLE,	VILLAGE,	BUNA,
	BRONSON,	MOBILE.	

All in the great yellow pine belt of Eastern Texas.

JOHN H. KIRBY, President.

SAM T. SWINFORD, General Sales Agent, Houston, Texas.

W. A. PRIDDIE, Western Sales Agent, 504 Keith & Perry Bldg., Kansas City, Mo.

THE T. WILCE CO.

Polished Hardwood Flooring, Kiln Dried, Bored and End-Matched.

22d and Throop Streets, CHICAGO, ILL.

Maple Flooring for Cotton Mills, Factories, Warehouses and Buildings for like purposes a special feature.

Delivered Quotations made to any point in the United States. Write for prices and our descriptive Booklet.

The Red Cypress Lumber Company, Macon, Ga.

MANUFACTURERS

BAND SAWED CYPRESS, PINE, HARDWOOD, SHINGLES AND LATHS.

We own 25,000 acres of Timber Land. Mill located near Gulf Coast. Capital Stock paid in $200,000

EDWIN A. HALLAM, President. W. E. McCAW, Vice-President. WM. J. CRICHTON, Secretary and Treasurer.

THOMAS FORMAN CO. Ltd., DETROIT, MICH.

MANUFACTURERS OF

High Grade Maple and Oak FLOORING, Kiln-Dried, Bored and End Matched

The most durable floor ever made, for Cotton Mills, Factories, Warehouses and Office Buildings.

CORRESPONDENCE SOLICITED.

We can refer to many large buildings in the South which we have furnished with this material.

J. P. STETSON, President. J. M. MATHEWS, Secy. and Treas.

STETSON LUMBER CO., Macon, Ga.

Manufacturers and Wholesale Dealers in

Rough and Dressed Long Leaf Yellow Pine.

Car Stock and Bridge Timbers a Specialty.

Bank and Office Fixtures.

The most complete assortment in the country.

Regular goods always in stock; anything special made to order.

Up-to-date plant equipped in the most modern manner with latest improved machinery, operated by experienced mechanics and supported by a large capital.

The result is but natural: You get what you want, and at a price that none can beat and only few can equal.

"Buy from the Makers."

M. L. HIMMEL & SON, Baltimore, Md.

Write for Catalogue No. 6.

International Mercantile Agency,

346 Broadway, NEW YORK CITY.

A rating book which *rates* all merchants of the United States and Canada; *no blank ratings.*

Estimates of capital are made within a *narrower range* than ever before attempted; *HABIT OF PAYMENT* is indicated in addition to, though absolutely independent of, the "capital, credit or standing rating." This is a vital feature heretofore uncovered by any agency book. We rate from "nothing" to ten millions and over.

SPECIAL REPORTS promptly furnished.

BALTIMORE OFFICES, 309-319 The Calvert.

Dearborn Junior Typewriter Table Cabinet.

Solid Golden Oak, 42 ins. long, 24 ins. deep. Guaranteed to be the most complete Typewriter Table CABINET ever sold at the price. Attachment for holding note book effective and invaluable. Shipped to responsible parties on approval for $12.00, freight prepaid east of the Rocky Mountains. What more can we offer? Write for catalogue of Dearborn Typewriter Cabinets.

DEARBORN DESK COMPANY.

MFRS. OF TYPEWRITER CABINETS EXCLUSIVELY. 1921 First Ave., Birmingham, Ala. 200 Monroe Street, Chicago, Ill.

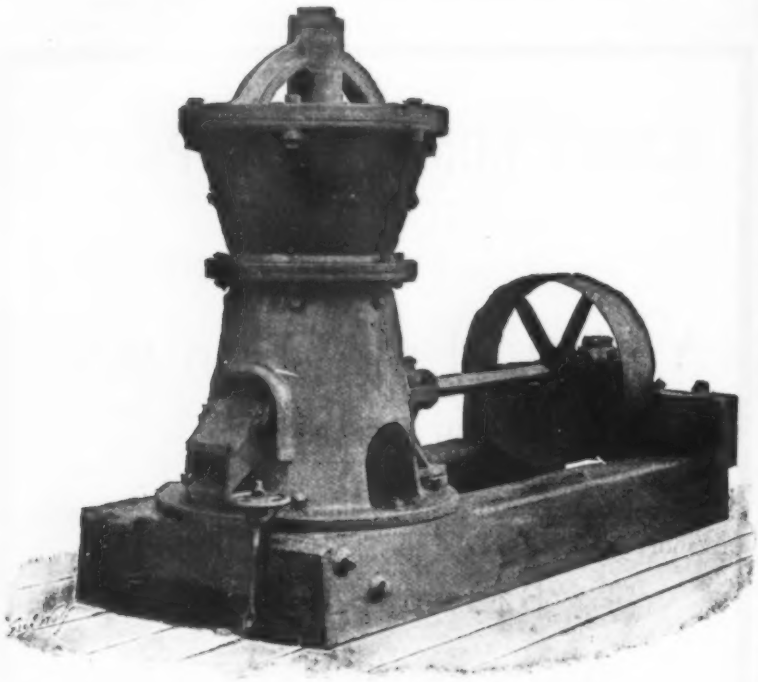
West Pascagoula Creosoting Works.

West Pascagoula, Miss., U. S. A.

Situated on Pascagoula Bay and on the line of the Louisville & Nashville Railroad. Established 1875. Orders for creosoted piles, telegraph poles, cross-arms, electric conduits, paving blocks, sawed ties and timber, promptly executed. Cylinders 120 feet long. Capacity one million feet per month. A. B. C. code used. Cable address Pierre, West Pascagoula, Miss. Address,

E. H. BOWSER, Supt.

Large Improved Crusher



The efficacy of the fertilizer depends upon the machinery which works the material as well as upon its constituents. Our full knowledge and long and varied experience in making this kind of machinery, enable us to produce high grade machines.

Information gladly furnished.

WALKER & ELLIOTT, Wilmington, Del.

THE LEADERS:

Davidsen Tubemills. Smidth Ballmills.

50% of the entire output of Portland Cement manufactured in the world is made in factories where these machines are installed.

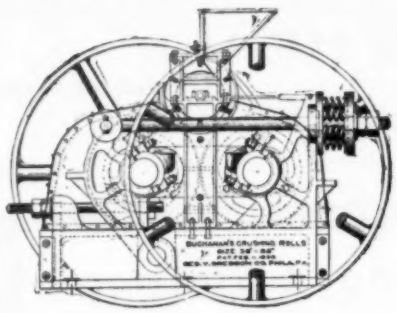
F. L. SMIDTH & CO.

ENGINEERS,

66 Maiden Lane, Cor. William Street, NEW YORK.

COPENHAGEN, Vestergade 29. LONDON, 9 Bridge St., S. W.

Buchanan's Crushing Rolls.



Drawing of 36"x22" Rolls, weight complete 37,000 lbs. Hammered Steel Shaft, 9" in bearings, 11 in. center. Interchangeable phosphor bronze bearings, 9"x22½". Crushing shells, 4½" thick, of open hearth or manganese steel. Automatic continuous feed and dust covers for dry crushing.

GEO. V. CRESSON CO.,

Philadelphia and New York.

Our Roll are strictly HIGH GRADE. All sizes from 18" up to 60". Send for Catalogues on Buchanan's Ore Breakers and Magnetic Separators.

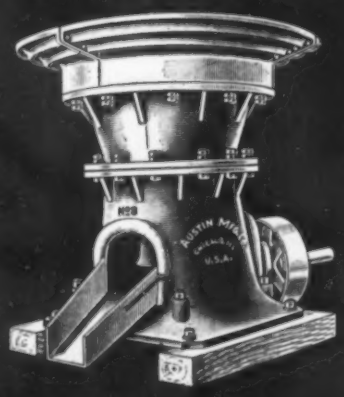
Power Transmitting Machinery.

C. G. BUCHANAN, Consulting Engineer.

Department of Crushing and Concentrating Machinery.

141 Liberty Street, NEW YORK, U. S. A

Austin Gyratory Crushers



Technically and mechanically without a fault.

Least liable to get out of repair and most economical in consumption of power.

Made in nine sizes.

In general use everywhere.

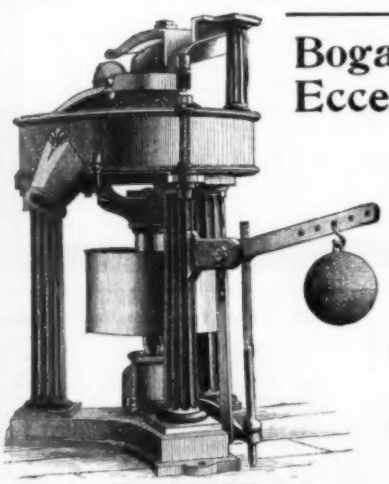
Write for the handsomest Crusher catalogue ever issued.

Also Dump Cars and Contractors' Machinery.

Austin Mfg. Co.

CHICAGO

BRANCH OFFICES: NEW YORK PITTSBURG ATLANTA ST. LOUIS



View of No. 2 Mill.

Bogardus Universal Eccentric Mill.

The reputation of this mill has long since been established as being the only mill in the world for grinding anything and everything.

It is economical. Requires little power. Any boy can attend to it; and does not get out of order.

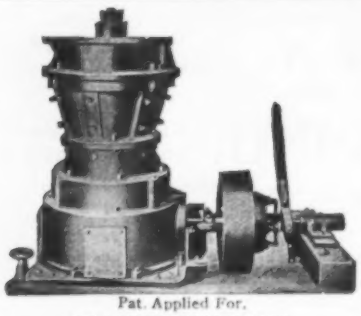
Will last a lifetime, only requiring new grinding plates occasionally at a small cost.

Catalogue and price list on application.

MANUFACTURED SOLELY BY

J. S. & G. F. Simpson

28 Rodney St., Brooklyn, N. Y.



Pat. Applied For.
ROTARY FINE CRUSHER.

Crushes 7 to 15 Tons PER HOUR

to wheat size.

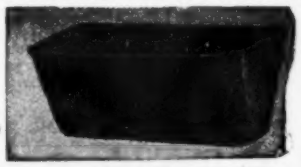
For finishing in Emery Mills or other grinding machines. Unequalled for Phosphate, Plaster, Limestone, Gypsum, etc. Send for circular.

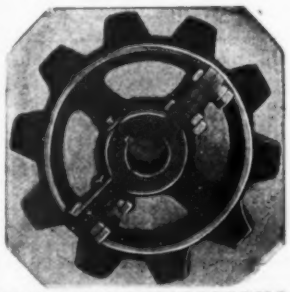
STURTEVANT MILL CO.,

116 Clayton Street, BOSTON, MASS.

HADFIELD'S

MANGANESE STEEL





Elevator Buckets, Link Belting, Sprocket Wheels, Gears.

Wearing parts for all kinds of machinery for Crushing Ore and Rock.

TAYLOR IRON & STEEL COMPANY,

HIGH BRIDGE, N. J.

IMPROVED WASHERS

Ore, Phosphate. Elevators, Conveyors, etc.

McLANAHAN-STONE MACHINE CO.

HOLLIDAYSBURG, PA.

AIR COMPRESSORS. FOR ALL PURPOSES SEND FOR CATALOGUE.

AMERICAN AIR COMPRESSOR WORKS,

26 CORTLANDT ST., NEW YORK.

PEACOCK'S IRON WORKS, SELMA, ALA.

Manufacturers of PLAIN AND AUTOMATIC SELF-OILING

TRAM CAR WHEELS, AXLES, CAR IRONS and CARS

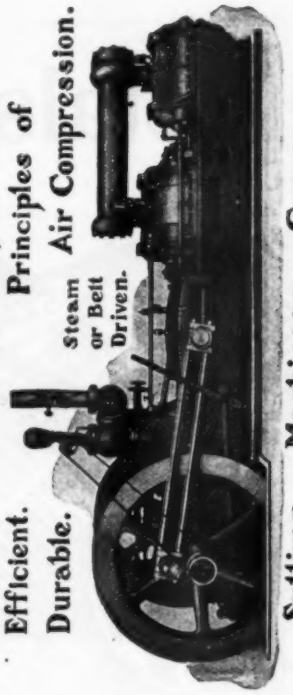
OF ALL SIZES AND KINDS. COAL AND ORE MINING CARS OF EVERY KIND.

Sullivan Straight Line Two Stage Compressors.

Embody the Best Principles of Air Compression.

Simple. Efficient. Durable.

Steam or Belt Driven.



Sullivan Machinery Company.

Claremont, N.H. New York. Pittsburg, Pa.

135 Adams St. Chicago, Ill., U.S.A. European Agency 25 Rue Raffet, Paris

St. Louis, Mo. Denver, Colo. El Paso, Tex.

ROAD BUILDING MACHINERY and supplies of every description

ACME ROAD MACH'Y CO., FRANKFORT, N. Y., U. S. A.

"Not an experiment; in general use throughout the world."

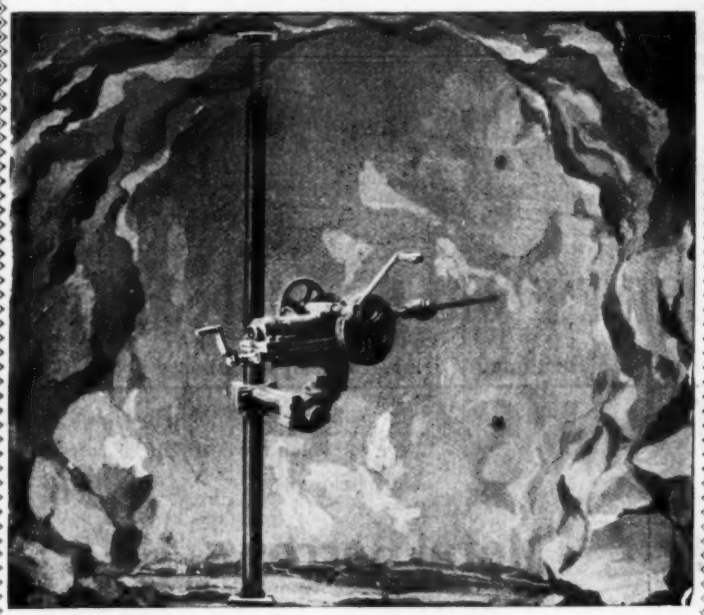
The New Jackson Hand Power ROCK DRILL

For Miners, Contractors and Quarrymen.

Made of Steel—Guaranteed Against Breakage.

Enables One Man to do the Work of Three Men.

In many instances this drill has reduced cost of mining 50 per cent.



H. D. CRIPPEN, Sole Manufacturer,

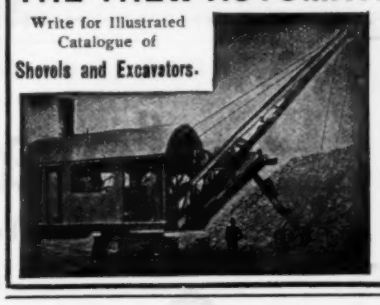
52 Broadway, NEW YORK.

Write for Catalogue.

THE THEW AUTOMATIC SHOVEL COMPANY,

LORAIN, OHIO.

Write for Illustrated Catalogue of Shovels and Excavators.



SHOOK & FLETCHER,

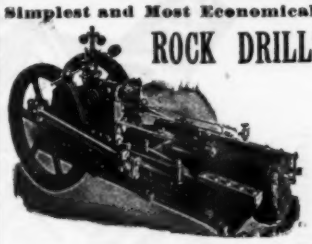
Gen'l Southern Agents, BIRMINGHAM, ALA.

STEAM SHOVELS FOR DOCKS AND RAILWAY TERMINALS.

Only one operator required.
Shovel works in complete circle.
Dipper moves horizontally.
Can be used as locomotive crane.

Simplest and Most Economical

ROCK DRILLS,



AIR COMPRESSORS of the Most Improved TYPES.

AIR LIFTS.

McKIERNAN DRILL CO.

170 Broadway, New York.

The most economical compressor is the one best adapted to the peculiar conditions under which it is to be used.

We have developed types which meet any emergency.

WRITE FOR CATALOG.

Rand Drill Company 128 Broadway New York

WE

PULVERIZE AND SEPARATE

Everything without Screens or Bolters.

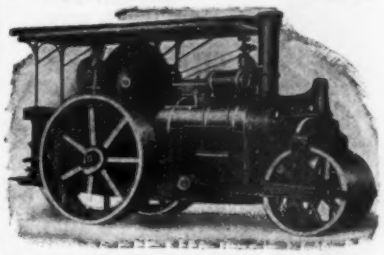
NOTHING TO WEAR OUT.
ABSOLUTELY DUSTLESS.

Write for Catalogues.

Raymond Bros. Impact Pulverizer Co.

143 Laflin St., CHICAGO.

STEAM ROAD ROLLERS.



Kelly-Springfield Road Roller Co.

SPRINGFIELD, OHIO.

THE

GRIFFIN MILL

IS NOW USED BY OVER **50** OF THE LARGEST

Portland Cement Manufacturers in the world.

For the highest references and illustrated catalogue giving full description, address

BRADLEY PULVERIZER COMPANY,

92 State St., Boston, Mass.

SCIENTIFIC ATTRITION MILLS

For Cotton Seed Crushers and Millers.

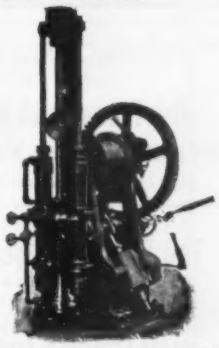
MADE BY US IN OUR OWN FACTORY

For The Past Twenty Years.

THE FOOS MFG. CO. SPRINGFIELD, O.

DIAMOND DRILLS

For Prospecting.



CATALOGUE ON REQUEST.

AMERICAN DIAMOND ROCK DRILL CO.

95 Liberty Street, NEW YORK.

Perforated Metals,

for all kinds of Screens—Brass, Iron, Steel, Tin, Copper, Zinc—perforated as required. Perforated Brass and Tin always in Stock.

PROMPT SHIPMENTS GUARANTEED.

A. J. BECKLEY CO.

Works—GARWOOD, N. J.

Get Our Prices.

HENDRICK MFG. CO.

CARBONDALE PA

PERFORATED SHEET METALS FOR SCREENING COAL, COKE, ORE AND ROCK.

PERFORATED METAL

IN SHEET

TIN, ZINC, COPPER, BRASS AND STEEL

EDWIN B. STIMPSON & SON

31 SPRUCE STREET

NEW YORK

Perforated Metals

For All Purposes.

Steel, Iron, Zinc, Copper, Brass & Tin.

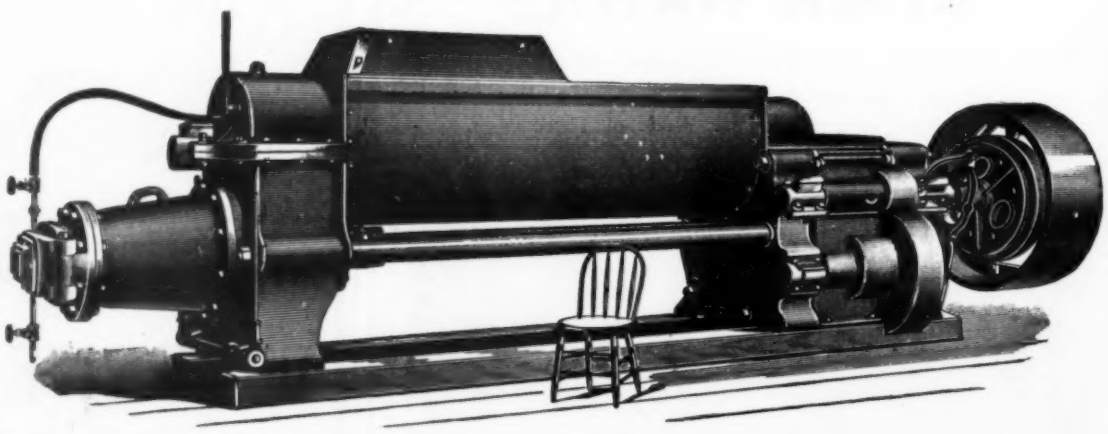
For Sugar Machinery.

For Cottonseed Oil Mills.

Centrifugal Machine and Filter Press Plates a Specialty.

E. M. FREESE & CO.

GALION, OHIO.



UNION BRICK MACHINES (with Pug Mill combined).

Four sizes. Any daily capacity required. Best quality brick. Greatest economy production.

Your Stable

SHOULD BE EQUIPPED WITH

THE KASPER SELF-ACTING OATS CLEANER,

a small device that is attached to the wall in place of the oats spout from the bin above. It is automatic in action, needs no power to operate, and

Removes Dirt, Weed Seeds And All Foreign Matter.

Delivers clean, pure oats, thereby preventing sickness and disease (will remove one bushel foul matter from 25 to 30 bushels best white oats). Over 22,000 in general use in stables where the health of the horse is considered.

Guaranteed and sent on approval. Write for prices and full particulars.

Kasper Oats Cleaner Co.

46 Hubbard Court, CHICAGO.

BRICK MACHINES,

Clay Grinding and Tempering Mills,

Brick Yard Supplies.

Complete Equipments—Hand or Power.

Interesting Catalogue upon request.

GEO. CARNELL,

1819-21-23 N. Germantown Ave., Cor. 5th, PHILADELPHIA, PA.

Whatever Your Needs, We Can Supply Them.

THE FERNHOLTZ BRICK MACHINERY CO.

MANUFACTURERS OF

Dry Press Brick Machinery.

Dealers in Brick Yard Supplies.

Boyle Ave. & Old Manchester Road, St. Louis, Mo.

The Fred. J. Meyers Mfg. Co.

HAMILTON, O.

Manufacturer of Office and Bank Railings Window Guards of every description Elevator Cabs and enclosures, Stable Fittings and Crestings. Ticket and Conductors' Punches, Wire Cloth for Coal and Ore Mines.

Send for Catalogue.

FOUNDRY BARROWS

In manufacturing these barrows, the hard usage to which they are put, is kept prominently before us.

Substantially Braced.

Metal Barrows

of all sizes and for all purposes.

Mining Cars, Coal or Coke Wagons.

Ask for Catalogue,

Jackson Mfg. Co. Harrisburg, Pa.

Wire Rope. Insulated Wires.

Send for Handsomely Illustrated Catalogs.

Hazard Mfg. Co.,
Wilkesbarre, Pa.

NEW YORK: 50 Dey Street.
CHICAGO: H. Channon Co. 24 Market St.

ESTABLISHED 1848. MANUFACTURERS OF IRON, STEEL AND GALVANIZED WIRE ROPE. INSULATED WIRES. UNDERGROUND CABLES. AERIAL CABLES. SUBMARINE CABLES. COPPER WIRE.

PERFORATED METAL

FOR RICE MILLS · SUGAR WORKS · PHOSPHATE MINES.
THE ROBT. AITCHISON PERFORATED METAL CO.
303 305 DEARBORN ST. CHICAGO ILL.

When in Need of **LEAD PIPE OR SHEET LEAD**

For Sulphuric Acid Chambers

Send your orders to The JAMES ROBERTSON MANUFACTURING CO., Baltimore, Md.

CARS—WHEELS—AXLES

CARS—Coal Mining—Ore Cars—Contractors' Dump Cars—Lumber Trucks, etc.
WHEELS—(8" to 24" diameter) SELF-OILING Capped—Side Pockets—Plain Spoked—Plate.
AXLES—Machinery Steel—Square or Round—Any gauge.

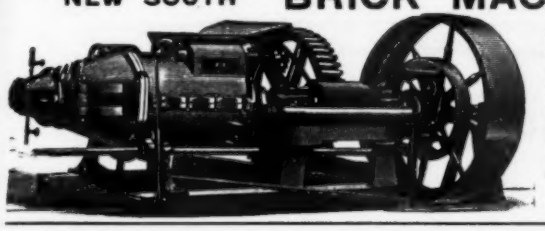
NOTE: Our wheels will outlast any you have ever used. We use charcoal iron mixed on a scientific chemical basis. Our methods and wheels are ahead of the times. A sample will convince you. Wheels have *deep chill* and *tough hub* for longest wear. We do not **THINK**, we **KNOW** we can please you.

PRICES—BLUE PRINTS—CUTS—ESTIMATE BLANKS
ON APPLICATION.

SANFORD-DAY IRON WORKS,
KNOXVILLE, TENN.

Mining Equipment, Drums, Sheaves, Rods, Pulleys, Cast Frogs and Turn-Outs, Grate Bars, Grates, etc.

"NEW SOUTH" **BRICK MACHINERY.**



Specially designed for working Southern clays. Three sizes with capacities from to 60,000 per day. Hundreds in daily use. 12 years' experience.

J. C. STEELE & SONS,
Statesville, N. C.

H. C. LARRABEE. JNO. C. MURPHY.

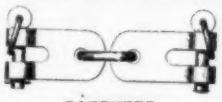
CAROLINE IRON WORKS,

Pyrites Burners Lump or Fine. **Eggs, Nitre Pots** Various Sizes.

Acid Egg a Specialty.

Write for Prices. Cor. Caroline and Lancaster Sts., Baltimore, Md.

STRONG AND DURABLE.



PATENTED.

THE **KEITH CLEVIS** Saves Many Times Its Cost Every Year.

IT IS UNEQUALLED FOR STRENGTH AND DURABILITY.
Prevents Runaways and Wrecks.

MANUFACTURED BY
W. R. Keith, Coal Creek, Tenn. State or Shop Rights for Sale.

Complete Industrial Railways

EQUIPPED, PLANNED AND BUILT FOR

CAR FOR FACTORIES, FREIGHT, ETC.

Factories, Plantations, Quarries, Mines, Contractors, Etc.

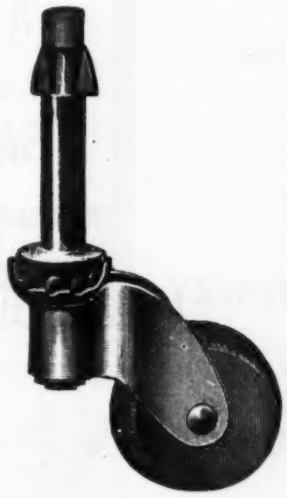
CARS OF EVERY DESCRIPTION FOR EVERY PURPOSE.

Rails, Switches, Turntables, Etc., always in Stock.

MANUFACTURED BY
ARTHUR KOPPEL, (Dept. K.) 66-68 Broad St., NEW YORK.
Write for Catalogue No. 25.

Something New.

Standard Ball-Bearing Philadelphia or Drive Casters.



Its Merits We Know. Its Success We Will Prove.

Simplicity, Durability and Cheapness.

Write for Samples and Illustrated Catalogue, Free.

Standard Caster & Wheel Co.

318-326 East 23d Street, New York.

BRODERICK & BASCOM ROPE CO.

Mfrs. of

WIRE ROPE

Y DON'T U TRY OUR PATENT STEEL ROPE

Ordinary Steel Rope after 4½ years' wear

showing broken wires.

Send for Catalogue.

Patent Steel Rope after 6 years' wear

doing double the work.

Send for Catalogue.

805 to 809 N. Main St., ST. LOUIS, MO., U. S. A.

For Economy In Cost, Maintenance and Space, Use Jupiter Rope.

Stretches but 1½ per cent., avoiding constant shortening.

Needs no V groove pulleys, reduces waste of power and wear of rope. Not affected by weather or by acid fumes. Wires protected by treated marline, making an easy running and long life rope.

"THE MOST POWERFUL OF THEM ALL."

Rope drives are best for any power, especially if you use Jupiter Transmission rope.

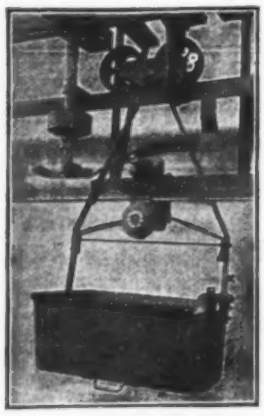
Hammond couplers complete the make-up of the best rope for power on either the American or English systems. We'd like to tell you more about it.

DURABLE WIRE ROPE CO. 287 Congress St., Boston, Mass.

WEBBER PATENT

COMPRESSION GRIP

with Patent Automatic Attacher



No lugs or knots of any kind required on the traction rope, giving longer service and saving in repairs.

Illustrated book upon application.

used only on the Patent

Bleichert Wire Rope Tramway,

Superior to All Others.

THE TRENTON IRON CO.

TRENTON, N. J.

Manufacturers, Engineers and Contractors, and Sole Licensees in North America for the Bleichert System.

Also, Wire Rope Equipments for Cable Hoist-Conveyors, Surface and Underground Haulage, Transmission of Power, etc.

New York Office—Cooper, Hewitt & Co., 17 Burling Slip.

Chicago Office, 1114 Monadnock Building.

YORK SAFE & LOCK CO

Bank and Safe Deposit

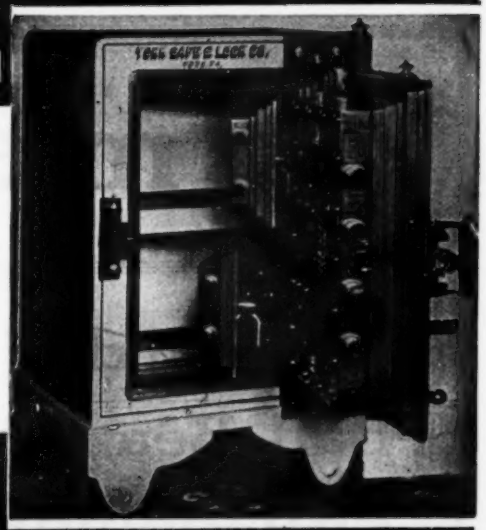
VAULTS

Fire & Burglar Proof

SAFES

YORK, PA.

BALTIMORE, MD.



BUFFALO WIRE WORKS CO

FORMERLY SCHEELERS' SONS

WIRE CLOTH & WIRE GOODS

BUFFALO, N.Y.

WIRE RAILING

AND

ORNAMENTAL WIRE WORKS.

DUFUR & CO.

311 N HOWARD ST BALTIMORE

Wire Railing for Cemeteries, Lawns, Gardens, Offices and Balconies; Window Guards, Tree Guards, Wire Cloth, Sieves, Fenders, Cages, Sand and Coal Screens, Iron Bedsteads, Chairs, etc.

BROKEN SECTION.

DIXIE VENTILATOR

Pat. Sep. 3, 1901

Our boast of superiority not unfounded. Confirming evidence gladly furnished.

Dowman-Dozier Mfg. Co. Atlanta, Ga.

RUBEROID ROOFING

TRADE MARK REGISTERED.

FOR THE

PHILIPPINES.

4,500,000 FEET

SHIPPED TO MANILLA.

The last order, for more than a million square feet, was placed with us at a price which was

16 PER CENT. HIGHER

than the highest bid for other Roofings. A further evidence of the absolute superiority of **RUBEROID ROOFING,** which has never had an equal for durability and efficiency.

MANUFACTURED SOLELY BY

The Standard Paint Company,

100 WILLIAM STREET,

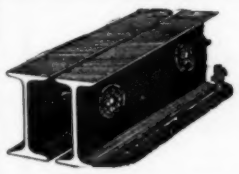
CHICAGO OFFICE, 188-190 MADISON ST. NEW YORK.

For PAINTING MILLS, FACTORIES AND WORKSHOPS

USE ONLY PAINTS BASED ON

ZINC WHITE.

A pamphlet, "The Paint Question," will tell you about it. Send TO US for one. } The New Jersey Zinc Co., Empire Bldg., 11 Bdwy., New York.



HEADQUARTERS FOR

I Beams, Girders, Columns, Sills, Window Guards, Office Railing, Iron and Wire Fences,

AND ALL KINDS OF

Structural Steel and Ornamental Iron Work.

Send for Catalogue. Prompt Service. Low Prices

EUREKA SUPPLY CO., - - Chattanooga, Tenn.

THE NEW JERSEY WIRE CLOTH CO.

For information about

WIRE LATHING,

With or without Stiffening Ribs,

Roebling's System of Fire-Proofing,

ADDRESS

The Roebling Construction Co.

121 Liberty St., NEW YORK.

Manufactures

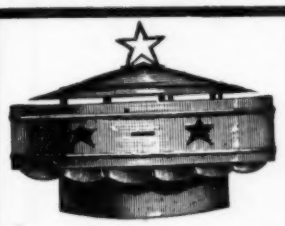
WIRE CLOTH

FOR ALL PURPOSES.

POULTRY NETTING,
WOVEN WIRE FENCING.

ROEBLING'S WIRE is used in all of the products of this Company.

For Catalogs, Samples and Information, address TRENTON, N. J.



THE STAR VENTILATOR

Storm-Proof. Effective.

For Ventilating Factories of all kinds, Foundries, Machine Shops, Power Houses, &c.

Merchant's High-Grade Roofing Plates.

Made by the Palm Oil Process.

No Wasters. Evenly Coated.

The Brands are: "Merchant's Old Method," "Merchant's Roofing," "American Old Style," "Camaret," "Alaska." Each sheet stamped.

Send for booklet, "How Roofing Tin (good and bad) is made."

Philadelphia New York — MERCHANT & CO., Inc., Sole Manufacturers. — Chicago Brooklyn

---

Burrowes

Rustless SCREENS

Keep Out FLIES and MOSQUITOES

Made only to order. Guaranteed to fit. Best in the World. Reasonable in price. Estimates furnished. We pay freight.

The E. T. Burrowes Co.

Factories at Portland, Maine

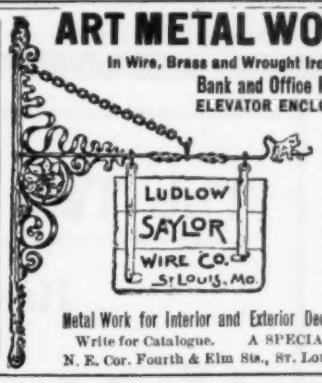
Baltimore Office, 315 Equitable Bldg.
Burch & Hughes, Sales Agents

ART METAL WORK

In Wire, Brass and Wrought Iron.

Bank and Office Railings

ELEVATOR ENCLOSURES



Wire Cloth, Coal and Ore Screens, Barbed and Plain Wire, Wire Nails and Staples.

Metal Work for Interior and Exterior Decorations A SPECIALTY,

Write for Catalogue.

N. E. Cor. Fourth & Elm Sts., St. Louis, Mo.

COLORS

and

SPECIFICATIONS.

A new folder illustrating steel structures, with practical specifications for construction and maintenance, painting of steel and iron; and the four shades of Dixon's Silica-Graphite Paint.

Published for free distribution by the

Joseph Dixon Crucible Co.

JERSEY CITY, U. S. A.

SAGENDORPH'S

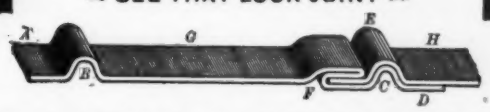
METAL SHINGLE

PAINTED STEEL, TIN OR GALVANIZED

3 Sizes—7 x 10, 10 x 14, and 14 x 20 inches.

SEE THAT LOCK JOINT

EMBOSSED

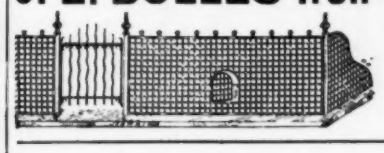


PLAIN

THE PENN METAL CEILING & ROOFING CO.

PHILADELPHIA and BOSTON.

J. E. BOLLES Iron and Wire Works.



Bank Railings, Elevator Enclosures and Cars, Grills, Electro Bronze Work, Fire Escapes, Iron Shutters, Stable Fittings, Window Guards, etc.

Send for Catalogue No. 20 M. Mention line of business. Detroit, Mich.

WISCONSIN IRON & WIRE WKS. MILWAUKEE

Brass, Iron and Wire Work

FOR INTERIOR AND EXTERIOR FINISHES

Bank Railings, Enclosures and Cars, Fences, Jail and Asylum Guards, Stable Fixtures and General Builders' Material. Plating.

The Test of Every Clime

TRADE MARK B

Has Proven the

'Black Diamond'

BRAND OF

ROOFING

to possess no superior in overcoming all sorts of weather conditions.

Black Diamond

gives a perfect roofing and it is a fact that fully 9-10 of all the roofing used in the UNITED STATES is made in our factories.

Roofing

should be carefully selected for Mills, Factories, Warehouses, Lumber Sheds, Boiler Houses, Railroad Buildings, Etc., Etc., as the quality that has won for our goods their present high reputation will be strictly maintained.

Coal Tar, Asphalt Paints, Insulating Papers, Deadening Felts.

We are the largest Distillers and Manufacturers of Coal Tar and Coal Tar Products in the World.

Sheathing Papers, Roofing Pitch, Paving Cement, Roofing Felts.

BEWARE of the light weight 2 and 3-Ply Ready Roofing that are being offered you. To give satisfaction 3-Ply Ready Roofing should not weigh less than 68 pounds to a roll of 108 square feet; 2-Ply not less than 45 pounds to a roll of 108 square feet. Where roofing of this kind is to be used for temporary work only, the lowest weight that is possible to make it satisfactory is 60 pounds 3-Ply; 40 pounds 2-Ply.

Information, free samples and catalogue gladly furnished. If you are interested, write.

Barrett Manufacturing Co.

Philadelphia, Pa.

New York. Chicago. Cleveland. Cincinnati. St. Louis.
Kansas City. Louisville. New Orleans. Minneapolis. Allegheny, Pa.

CAREY'S MAGNESIA FLEXIBLE CEMENT ROOFING

Always Conceded the Best Roofing Ever Made

FOR FLAT OR STEEP SURFACES — ALL CLASSES OF BUILDINGS — WEARS LIKE SLATE

Catalogue, Sample and Full Information Would Interest You

THE PHILIP CAREY MFG. CO., SOLE MANUFACTURERS, LOCKLAND, OHIO

BRANCHES: ATLANTA, GA., CHARLOTTE, N. C., NEW ORLEANS, NEW YORK, PITTSBURG, ST. LOUIS, BUFFALO, CLEVELAND

See our Covering Advertisement on Page 34

AQUALITE

THE LATEST AND BEST

COLD WATER PAINT

For Outside and Inside Work, Fireproof and Weatherproof.

All the advantages of others, many features exclusively its own.

OUR OTHER BRANDS ARE:

MURALTINT and HYGIENE

In White and Colors,

FOR INSIDE WORK.

ALSO

WHITE ROSE

In White only,

FOR INSIDE WORK.

For Samples, Prices and Literature giving full information, address

Columbia Refining Company,

SOLE MANUFACTURERS.

32 Broadway, NEW YORK.

SELLING AGENTS:

UNDERHAY OIL CO., 275 Franklin St., Boston, Mass.
E. F. HOUGHTON & CO., 240 to 250 W. Somerset St., Philadelphia, Pa.
JEWELL BELTING CO., Mgrs. Chicago Branch of E. F. Houghton & Co., 175-177 Lake Street, Chicago, Ill.
WHITTIER-COBURN CO., 18, 20 and 22 Fremont St., San Francisco, Cal.

We Look Carefully After

Quality.

That's Why

Portable Asphalt Gravel Roofing

is specified by Builders, Architects and called for by Owners of Buildings, being adapted to Roof Buildings of all kinds, from Mill to Railroad Shed.

This roofing is made from the Natural Asphalt Saturated Felt, and Coated with Pure Trinidad Asphalt.

It is to your interest before finally deciding upon a roofing to write us for facts and samples—do it to-day.

Stowell Mfg. Co.

114-134 Culver Avenue, Jersey City, N. J.

Red, Brown, Buff and Black

MORTAR COLORS

The Strongest and Most Economical in the Market.

One-half the amount of our **Mortar Colors** will do the work of any other and they are unsurpassed in **Strength, Fineness,** and **Body.**
Write for Samples and Quotations.

CHATTANOOGA PAINT CO.
CHATTANOOGA, TENN.

We manufacture a superior grade of
Red Oxide of Iron Paint for Railroad Cars, Bridges, Barns, Fences, Etc.

CHESAPEAKE IRON WORKS,

Manufacturers of

Ornamental Iron Work.

336 to 342 North Street, Baltimore, Md.

BEAMS, CHANNELS, ANGLES, and CAST IRON COLUMNS.

Union Bond Steel Wall Ties

All Kinds—Galvanized

FOR
Face Brick, Veneering, Terra Cotta, Hollow Walls, etc.

UNION BRICK BOND COMPANY, Exclusive Mfrs., **PITTSBURG, PA.**

MAGNITE COLD WATER PAINT
WHITEST WHITE KNOWN

WONDERFUL LIGHT-REFLECTING QUALITIES
A FIRM, HARD FINISH, THAT WILL NOT FLAKE OR SCALE OFF

MADE IN WHITE AND MANY BEAUTIFUL TINTS
SPECIAL! IT WILL NOT BURN

J. A. & W. BIRD & COMPANY, 10 WELD STREET, BOSTON

MINDEN LUMBER CO. - - - - - - - - - MINDEN, LA.
This plant has in use 140,000 square feet of our Stone Surfaced Roofing.

Cotton and Lumber

Are Struggling for Supremacy.
Manufacturers of both are agreed on one subject—
—— THEY USE ——

WARREN'S NATURAL ASPHALT STONE SURFACED ROOFING.

This is a pure natural asphalt roofing with a surface of fine ocean grit, put up in rolls of 108 sq. ft. It is fire-proof, acid-proof, very durable, and is designed for use direct by the consumer, thus avoiding double profits.

WARREN CHEM. & MFG. CO. 16 Battery Place, NEW YORK.

W. H. RAPLEE, S. W. Representative P. O. Box 31, Shreveport, La.

MF

From **M**argam **F**orge, Glamorganshire, South Wales, to **M**artin's **F**erry, Belmont Co., Ohio.

NOTE THE COINCIDENCE:

The most favored brand of roofing tin, the **MF** which originated at **M**argam **F**orge in South Wales about sixty years ago, is now being produced by the American Tin Plate Co. in its works at **M**artin's **F**erry, Ohio.

At the **M**artin's **F**erry Works the **MF** old style process has been combined with the "New Method" of finishing Terne Plates. The result of this happy combination has been the U. S. Eagle N. M.

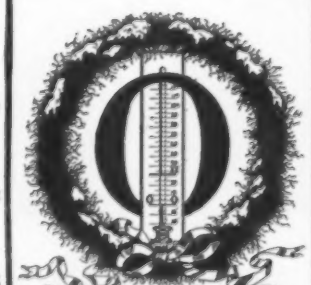
Ask W. C. Cronemeyer, Agent, 1211 Carnegie Building, Pittsburg, Pa., for our new booklet which teems with useful information.

U. S. N. TRADE MARK. M.

AMERICAN TIN PLATE CO., Battery Park Bldg., New York.

Sold by
John Simmons Co.
110 Centre Street
New York

IRON AND BRASS PIPE FITTINGS
—FOR—
STEAM, GAS, AND WATER.



A HIGH GRADE COATING
—FOR—
Refrigerating
AND
STEAM PIPES, BOILER FRONTS, ETC.
NOT AFFECTED
—BY—
HEAT OR COLD

SLATE ROOFS

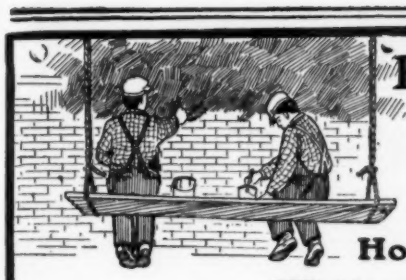
LOOK THE BEST. LAST THE LONGEST.
Write for Free Book and lowest prices.

NAILS and CEMENT.

JOHN GALT & SONS,
253 Broadway, - - NEW YORK.
95 Washington St., CHICAGO.

TOOLS and SLATE DRESSERS.

BELMONT IRON WORKS,
PHILADELPHIA, PA.
STRUCTURAL & ORNAMENTAL WORK.
1000 TONS
BEAMS, CHANNELS & ANGLES IN ALL SIZES.
FOR SALE FROM STOCK, PLAIN, PUNCHED & FRAMED.
GIRDERS, COLUMNS, ROOF TRUSSES.
BRIDGE RAILINGS & HOUSE RAILINGS.
ALL CLASSES OF ARCHITECTURAL WROUGHT & CAST IRON WORK



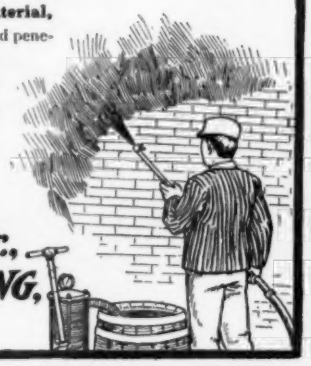
PAINTING BY HAND IS WASTEFUL

when one man with

Hook's Pneumatic Whitewashing Machine

can do the work of twenty men with brushes. This machine can be used by **anyone, anywhere, with any material,** saving material, distributing the paint more evenly and penetrating every nook and crevice. No scaffolds required. The price of it is so low as to make it possible for every one using paint or whitewash to possess at least one.

Send for catalogue and price list.



F. E. HOOK, *Mfr.*,
22 TO 26 HOOK BUILDING,
Hudson, Mich., U.S.A.

Manufacturers **CABINET AND BUILDERS' HARDWARE**
and SPECIALTIES IN IRON.

WRIGHTSVILLE HARDWARE CO., - - WRIGHTSVILLE, PA.

SUCCESSORS TO
SHEPARD HARDWARE CO., Buffalo, N.Y.
in the following departments of the business:

Blind Hinges, Gate Hinges, Gate Latches and Frame Pulleys

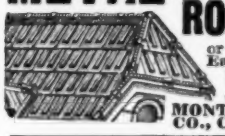
Flintkote Roofing

THAT wise men all over the country are beginning to appreciate this product is shown by our enormous increase in orders, forcing us to enlarge our manufacturing facilities many times.

FIRE-PROOF — DURABLE
FUME-PROOF — INEXPENSIVE
ACID-PROOF — HANDSOME

J. A. & W. BIRD & CO.
"The Flintkote Folks" BOSTON, MASS.

METAL SHINGLE-ROOFING



Best for house or barn. *Fire-proof.* **Easily Laid.** Cheaper than slate or wood. Prices, catalogue and testimonials FREE.
MONTROSS SHINGLE CO., Camden, N. J.

NATIONAL ROOFING & SUPPLY CO.

LOUISVILLE, KY.

Gravel Roofers.
Cement and Asphalt Pavers.
Building Papers.
Two and Three-Ply Ready Roofing.

THE EASTERN GRANITE ROOFING CO.
IRVING BUILDING
New York.

THE ENORMOUS INCREASE SHOWN HERE PROVES THAT PERFECTED GRANITE ROOFING IS THE ROOFING TO USE.

THE MOST PROMINENT COAL OPERATORS AND RAILROADS TESTIFY TO THIS BY ADOPTING IT AS THEIR STANDARD.

Write for testimonials, photo pamphlet and samples.
DEPARTMENT D.

Free Education In Roofing

For anyone interested. Write for illustrated booklet.

CORTRIGHT METAL ROOFING CO.,
Philadelphia and Chicago.

American Roofing Company,
MOBILE, ALA.

GRAVEL ROOFS.

Star White Wash and Painting Machines,

ALL KINDS AND ALL SIZES.
Write for Catalogue.

THE STAR BRASS WORKS,
67 So. Canal Street, CHICAGO.

"Bink's Fire Proof Paints"

ARROW BRAND ASPHALT READY ROOFING.

Comes in rolls already coated with gravel. Easy to lay. Contains no tar. No painting required.

Asphalt Ready Roofing Co., Sole Mfrs., 136 Water St., N. Y.

Notice the smooth lap which comes on every roll and insures tight joints.

SLATE { **Roofing, Black Boards, &c., &c.**

DON'T say Slate is too expensive until you ascertain what it can be *delivered* for *f.o.b.* at your *Station.* Advise us what you may be in *need* of and we will *quote* the very *lowest* prices. *Handmade Slaters' Tools, Nails, Felt and Cement* a specialty, and can be *shipped* with the Slate.

DAVID McKENNA, Slatington, Pa.

Raw Hide

WE MAKE IT
CUSTOMERS ASK FOR IT
THEY ARE ALWAYS PLEASED WITH IT

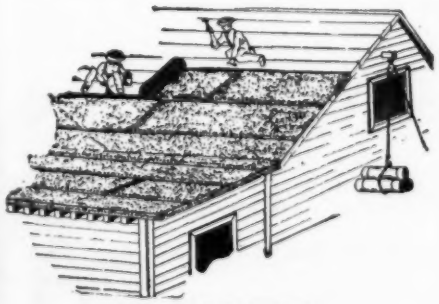
C. S. GARRETT & SON CO.
PAPER MAKERS
20 & 22 S. Marshall St., Philadelphia.

Prepared Gravel and Slag Roofing

As prepared and applied by our specifications, will give you a perfect roof covering for all your buildings, Compare our roofings with others.
Samples and Catalog for the asking.

Armitage Mfg. Co., Richmond, Va.

SPECIALTIES.—2 and 3-ply Roofing, Insulating, Building and Sheathing Papers, Asphaltum, Pitch, Roof-Paints, etc.



SEND FOR BOOKLET.

WHITE ROCK STONE-SURFACED ROOFING

is moderate in price, easily laid, presentable and durable. Our chief aim is quality, and the price is governed accordingly. Any handy man can lay it. Suitable for most any shaped roof. Proof against storms and corroding fumes; consequently, naturally appropriate for CHEMICAL FACTORIES, BOILER HOUSES and POWER PLANTS.

BUCHANAN-FOSTER CO., 724 Drexel Bldg., PHILADELPHIA, PA.

Metal Skylights

that positively will not leak, drip, sweat or burn; self-ventilating. All about them in our Illustrated Catalogue—free for the asking. Shall we mail it to you?

E. VAN NOORDEN CO.
950 Massachusetts Ave.
BOSTON, MASS.

TEXTILE MACHINERY.

Plans Made and Factories Completely Equipped with Driving and Machinery.

Plain Beaming Machines, Pressure Attachment.
Dyeing Machines for Warp and Piece Goods.
Single and Double Warp Sizing Machines.
Warp Tension Attachment for Looms.
Improved Presser Beaming Machines.
New and Improved Looms.
Warp Splitting Machines.
Plain Beaming Machines.
Harness Motions.
Improved Reels.
Dobby Motions.
Warping Mills.
Cut Registers applicable to Beaming Machines.
Hank Twisting and Stretching Machines.
Self-acting Wool Scouring Machines.
Four-Cylinder Napping Machines.
Patent Bobbin Winding Machines.
Patent Cop Winding Machines.
Cradle and Cone Indigo Mills.
Improved Presser Spoolers.
Calendering Machines.
Yarn Bundling Presses.
Loom Beam Trucks.
Plain Spoolers.
Fulling Mills.

Shafting, Hangers, Pulleys, Etc.

Adjustable Self-Oiling Bearings.
Patent Couplings.
Patent Self-Oiling Loose Pulleys.
Patent Self-Oiling Loose Pulley with Patent Bevel Flange.
Improved Loose Pulley Bearings.
Patent Friction Pulleys.
Patent Friction Cut-off Couplings.
Gearing.
Improved Self-Oiling Angular Driving.
Plain Self-Oiling Muley Driving.
Patent Adjustable Self-Oiling Muley Driving.
Vertical Shaft Transmission with Bearings which do run cool.
Carrier and Gallows Pulleys.
Guide or Binder Pulley Stands.
Patent Belt Tighteners,
Rope Transmission.

Sheave Wheels, any size required, for Hemp, Manila and Cotton Rope Driving.

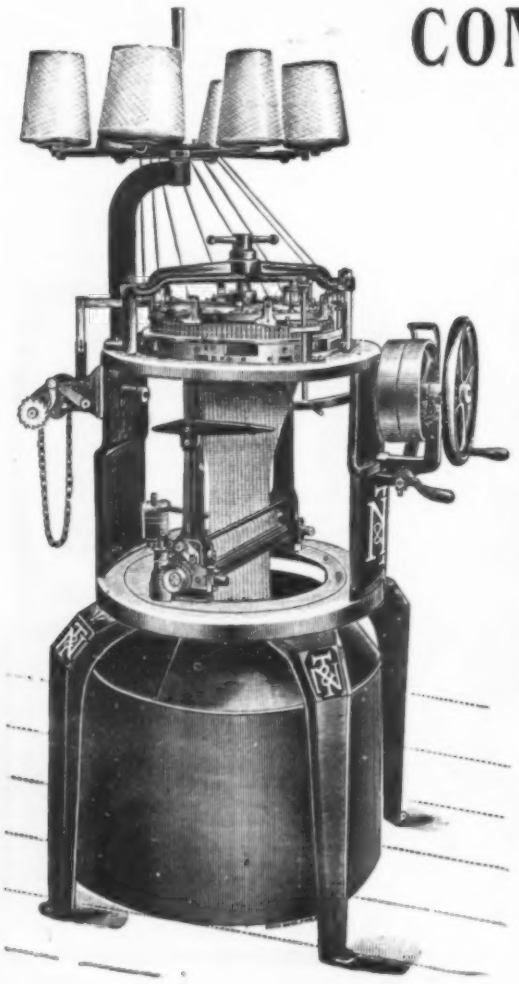
Freight Elevators, Foundry, Machine and Millwright Work.

Fairmount Machine Co.

Twenty-Second and Wood Streets,

PHILADELPHIA, PA.

NYE & TREDICK COMPANY,



Manufacturers of...

Circular Rib Knitting Machinery

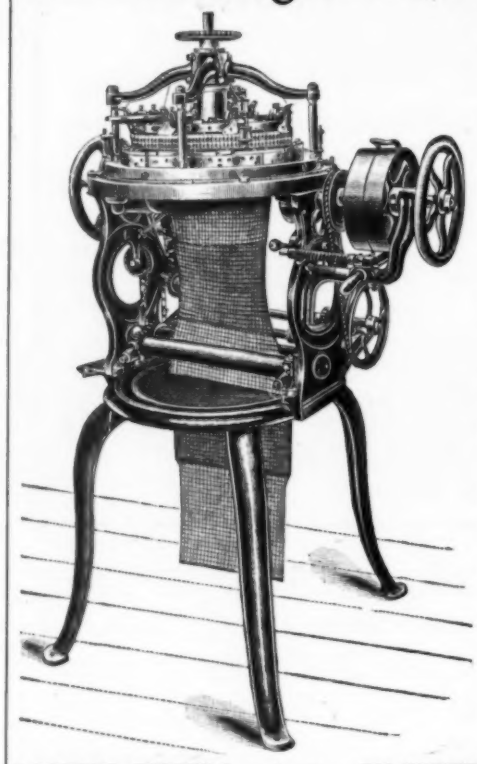
No. 606 Arch Street,

PHILADELPHIA, PA., U. S. A.

SCOTT & WILLIAMS,

BUILDERS OF

Rib Knitting Machinery For UNDERWEAR and HOSIERY.



THE illustration shows our IMPROVED HIGH SPEED SINGLE LEVER AUTOMATIC RIBBED UNDERWEAR MACHINE, for making Ladies' and Gents' Ribbed Underwear, Union Suits, etc., Plain and Shaped.

Plain, Single Lever or with Welt, Slack Course and Automatic Slackening Device for Welt.

Improved Measuring Device, by actual length knit.

Sizes, 8 to 24 inches inclusive, varying by one inch.

Number of Feeds, 4 to 12, according to style and diameter of machine.

Solid Forged Steel Cylinders, specially hardened, or with patent inserted walls for fine fabric.

Special Machinery for Sweaters, etc.

WE BUILD

LOOPERS, RIBBERS and other MACHINERY FOR KNITTING MILLS.

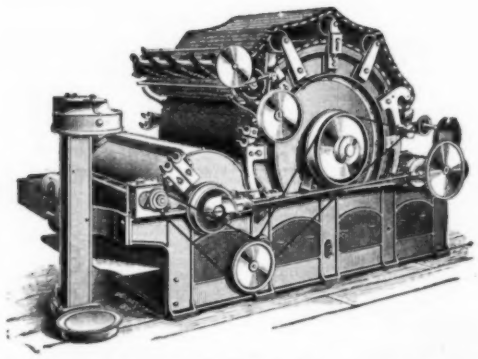
As well as a complete line of full Automatic and ¾ Automatic Seamless Hosiery Machinery. Full particulars, samples and special catalogues on application.

2079 E. Cumberland Street, - - Philadelphia, Pa., U. S. A.

MASON MACHINE WORKS,

TAUNTON, MASS.

Cotton Mill Machinery



CARDS, DRAWING FRAMES, RAILWAY HEADS, COMBERS, LAPPERS, SPINNING FRAMES, MULES, LOOMS.

Southern Office: Charlotte, N. C.

"The Standard" Scales

FOR

Cottonseed Oil Mills, Cotton Gins, Railroads, Mines, Mills, Warehouses AND ALL PURPOSES

Used by the U. S. Government, Leading Railroads and Manufacturers.

THE STANDARD SCALE & SUPPLY CO., Limited, Manufacturers,
PITTSBURGH, PA.

BEST { MATERIAL / WORKMANSHIP / RESULTS

Are combined in the

PICKING MACHINERY.

BUILT BY THE

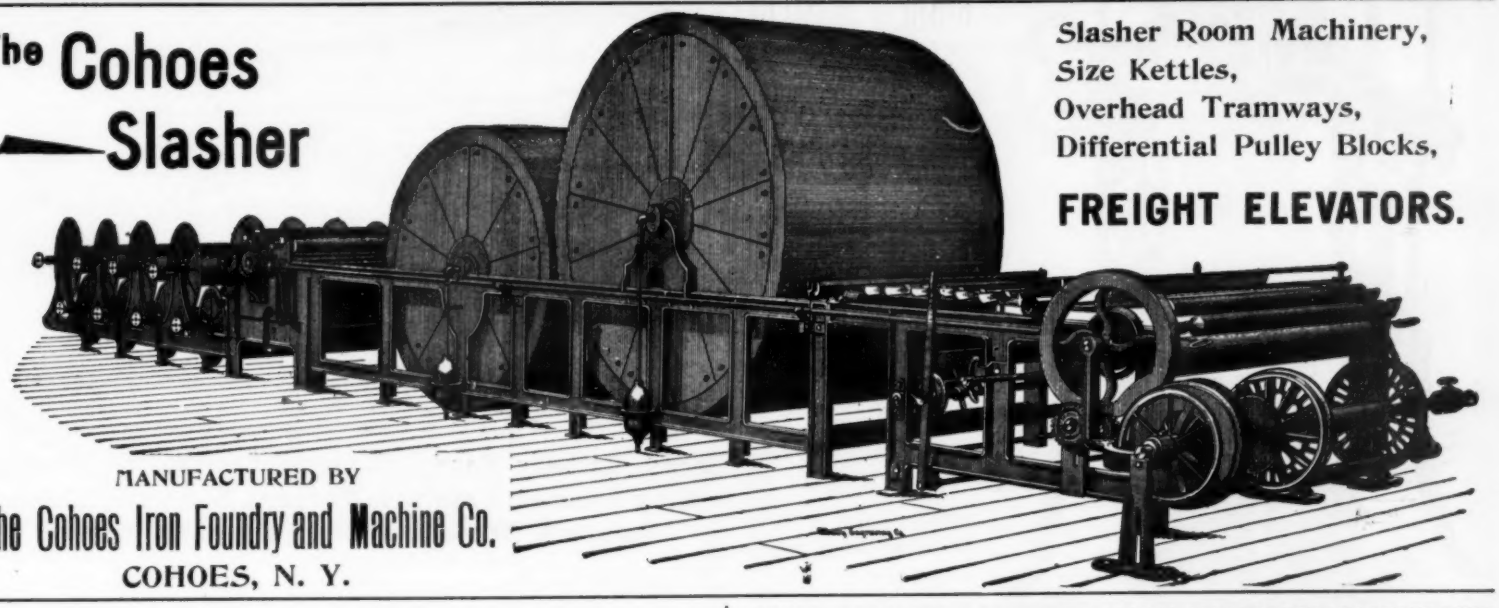
A. T. ATHERTON MACHINE CO.

PAWTUCKET R.I.

The Cohoes Slasher

Slasher Room Machinery,
Size Kettles,
Overhead Tramways,
Differential Pulley Blocks,

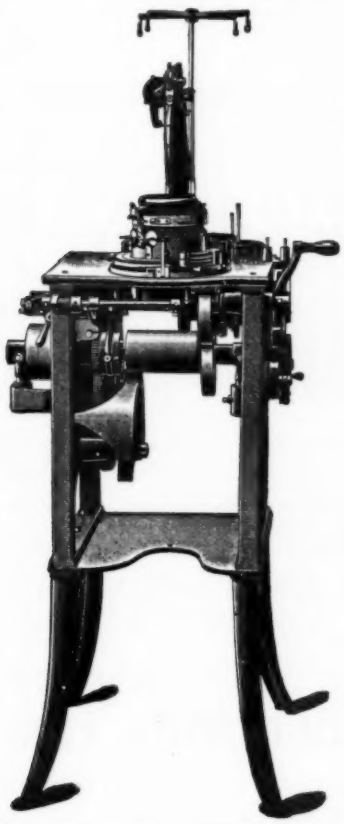
FREIGHT ELEVATORS.



MANUFACTURED BY

The Cohoes Iron Foundry and Machine Co.

COHOES, N. Y.



THE ACME AUTOMATIC KNITTER

FOR

SEAMLESS HOSIERY.

Has all the Latest Attachments and Improvements.
Is used by the most prominent mills in the South and elsewhere.
We also manufacture LATCH NEEDLES of superior quality for all makes of machine.

For Particulars Address

MAYO KNITTING MACHINE & NEEDLE CO.,

FRANKLIN FALLS, N. H.

Philadelphia Office:
KNICKERBOCKER BLDG.,
Cor. 6th and Arch Sts.

KILBURN, LINCOLN & CO.

FALL RIVER, MASS.

MAKERS OF

LOOMS

FOR

Plain and Fancy Weaving.

Our "High Speed Loom" is the result of over fifty years of development and improvement.

We are represented in the South by

O. A. ROBBINS,

CHARLOTTE, N. C.

COTTON-SEED **Linter**

For 1903.

Patent Automatic Feeder.
Adjustable Seed Board.
Adjustable Friction Drive for Float.
New Method Drive.
Patent Iron Cylinder.
Whole Saw Wood.
Whole Saw Iron Cylinder.

WE ALSO MAKE

Cotton Seed Hullers, Gummers, Saw Filing Machines, Cotton Gins.

CARVER COTTON GIN CO. East Bridgewater, Mass., U. S. A.

Cottonseed Oil Machinery.

Tobacco Cutting Machinery.

Brass Goods FOR ENGINE BUILDERS, STEAM, WATER AND GAS FITTERS.

Write for Catalogue.

BUCKEYE IRON & BRASS WORKS,

DAYTON, OHIO, U. S. A.

A. H. WASHBURN,

SOUTHERN AGENT

SACO & PETTEE MACHINE SHOPS

Everything needed for the Complete Equipment of COTTON MILLS to Manufacture

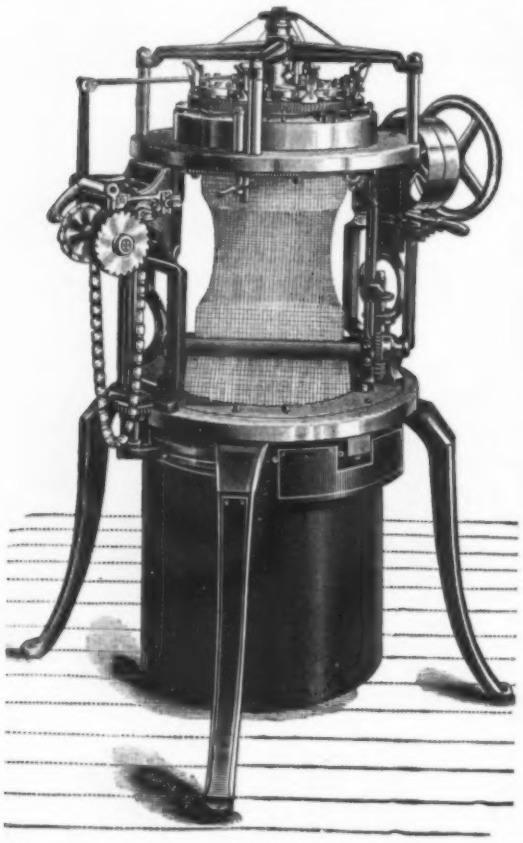
Yarns and Woven Fabrics of all Kinds,

CHARLOTTE, NORTH CAROLINA.

McMICHAEL & WILDMAN MFG. CO.

Rib Knitting Machinery

AUTOMATIC AND PLAIN.



FOR ALL CLASSES OF

RIBBED HOSIERY

AND

UNDERWEAR, COMBINATION SUITS, SWEATERS, Etc.

ESTABLISHED REPUTATION FOR

Largest Production, Best Quality Fabric, Durability, Economy of Operation.

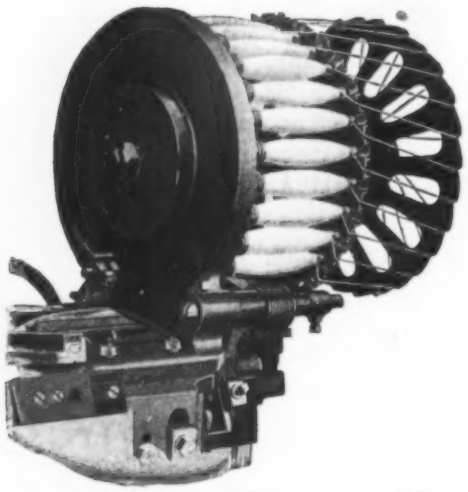
Full particulars, description and samples furnished upon application to the

McMichael & Wildman Mfg. Co.,

NORRISTOWN, PENNA.

A NEW HOPPER

For the New Century.



The Hopper makes the Loom. Note the Size and the Simplicity.

THE DRAPER CO., Hopedale, Mass.

THE CAMPBELL & CLUTE MACHINE CO.

COHOES, N. Y.

MANUFACTURERS OF **KNITTING MACHINERY**

For Knitting Shirts and Drawers. Plain, Fancy or Fleece Lined. Eider Downs and Plushes of all kinds.

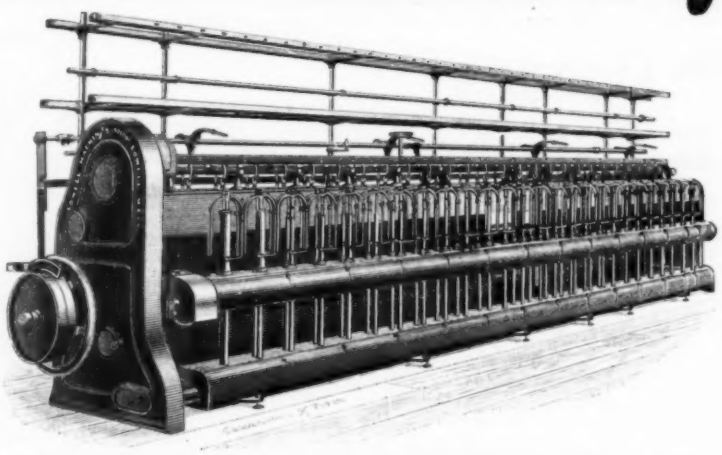
FLAT CUFF MACHINES. Single Stitch, Double Stitch and Patent Two-Thread Loopers.

YARN WINDERS. Burrs and Wheels of all kinds. Burr Blades. Sinkers. Etc.

LOWELL MACHINE SHOP

LOWELL, MASS.

Cotton Machinery



Cards, Railway Heads, Drawing Frames, Fly Frames, Ring Frames, Spoolers, Warpers, Slashers, Looms, Twisters, Reels, and Cloth Room Machinery.

O. A. ROBBINS,

Charlotte, N. C.

MACHINERY AND EQUIPMENT

FOR

COTTON MILLS.

BRANCH OFFICE: Providence Machine Co.; Easton & Burnham Machine Co.: Fales & Jenks Machine Co.; Kilburn, Lincoln & Co.

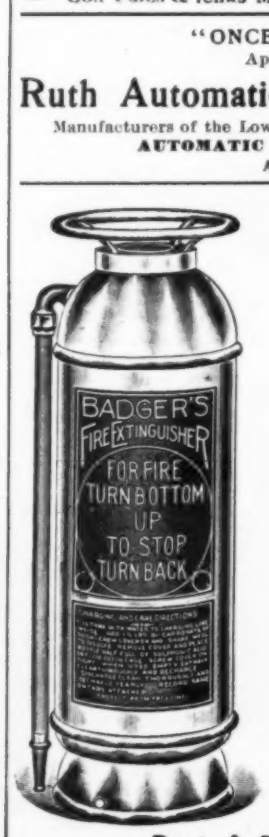
"ONCE USED, NEVER WITHOUT,"

Applies to **ALL** the products of the

Ruth Automatic Knitting Machine Company

Manufacturers of the Lowest Price **SIMPLEST, MOST DURABLE** and **BEST AUTOMATIC KNITTING MACHINES** and attachments.

Address P. O. Box M, YORK, PA.



Protection from Fire

Owners of Factories, Mills and other inflammable Buildings situated away from the ordinary fire apparatus will appreciate the need of an adequate protection from fire.

BADGER'S
Fire Extinguisher

Examined under the Standard of the National Board of Fire Underwriters by the National Fire Protection Association and Approved for use.

Puts out any fire instantly. Strong, Simple in action. Inexpensive. Endorsed and used by the United States Gov't.,

HUNDREDS OF MILLS,

the Boston & Maine, Seaboard Air Line, Boston Elevated and other railroads.

Send for full particulars.

BADGER FIRE EXTINGUISHER CO.

Dept. A, 32 Portland St., BOSTON, MASS.

OIL MILL MACHINERY.

Our specialties are Seed Cleaners, Rolls, Hullers, Crushing Rolls, Cookers, Formers, Presses and Reboxing other makes of Presses.

STUART W. CRAMER, Charlotte, N. C., is Southern Agent for our KNUCKLE JOINT CLOTH BALING PRESSES.

G. H. BUSHNELL PRESS CO.

Thompsonville, Conn.

Cotton-Seed Oil Mills.

WE are building the Latest Improved Machinery for making Cotton and Linseed Oil of any capacity from the Plantation Mill of 5 tons per day upward. Our Mills have all the Latest Improvements in Machinery and produce the very best results. Also

HYDRAULIC COTTON PRESSES AND HYDRAULIC PUMPS,

Either Steam or Power.

Full Information Gladly Furnished.

THE CARDWELL MACHINE COMPANY, Richmond, Va.

Cottonseed Oil Machinery.

(Not in any Combination or Trust.)

Modern Ginning Systems.

Write for Catalogue.

E. Van Winkle Gin & Machine Works,

Atlanta, Georgia, U. S. A.

Local Oil Mills and Ginneries Combined.

We Sell

Taps,
Drills,
Reamers,
Files, Wrenches,
Emery, Sand Paper,
Lathes, Upright Drills,
Machine Shop Tools of all kinds,
Hose, Hose Pipes and Supplies,
Yarn Reels, Yarn Testers, Yarn Scales,
Roving Cans, Doffing Boxes, Baskets,
Oil Tanks, Oil Cabinets, Oil Cans, and any Article

USED BY A TEXTILE MILL.

AMERICAN SUPPLY COMPANY,

PROVIDENCE, R. I.

"Columbian" Cordage.

The Test of time has made a high reputation for it.

COLUMBIAN CORDAGE CO.

Auburn, N. Y.

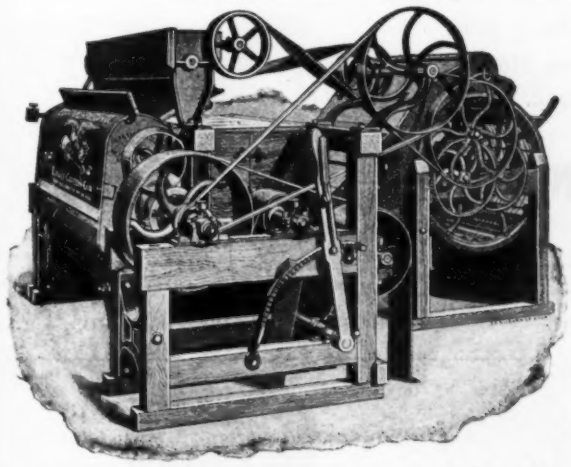
CONTINENTAL GIN COMPANY,

INCORPORATED

BIRMINGHAM, ALABAMA.

MANUFACTURERS OF

High Grade Linters with Automatic Feeders.
Also Linter Baling Presses



And the Celebrated
Winship,
Smith,
Munger,
Eagle,
Pratt
Cotton Ginning Machinery.

Factories
Atlanta, Ga.
Avondale, Ala.
Birmingham, Ala.
Bridgewater, Mass.
Dallas, Tex.
Memphis, Tenn.
Prattville, Ala.

The above cut represents the front and driving end of the Continental Linter with Automatic Feeder and Single Condenser attached.

Our Lint Flue System with Battery Condenser, in connection with our High-Grade Linters, is considered the finest equipment for the Linter Room of an oil mill. Builders of new oil mills should investigate this system before trying anything else. By its use there are many advantages, such as

Saving in Floor Space, also in Labor.
Reduces Fire Risk To Minimum.
Reduces Wear and Tear on Machinery
By Taking Dust out of Building.
Improves Quality of Lint.

Our Linters are Now Being Used in Over 120 Mills. Our Lint Flue System in Over Forty Mills.

Send For Catalogue.

Isham's California Waters of Life.

A spring of water has been discovered in California that has proved to be a true solvent, and cures all manner of diseases: bright's and diabetes in last stages relieved in from one to three days and many cures made within 30 days. Stiff joints are made supple and the worst cases of rheumatism cured. It is believed to be the veritable fountain of youth. Write for pamphlet, mailed free. Address

F. B. ALDRICH, Mgr.,

Isham's California Waters of Life,

Fidelity Bldg., Baltimore, Md.

SECOND-HAND

HYDRAULIC MACHINERY

FOR

Cotton Seed Oil Mills.

Address "AMERICAN,"
1505 Manhattan Bldg., Chicago

AMERICAN TYPE FOUNDERS CO.

ORIGINATORS OF

TYPE STYLES

ELECTROTYPES

BEST EQUIPPED PLANT IN THE SOUTH

NICKELTYPES

FOR HALF TONES. SOMETHING NEW. BIG SAVING IN THE PRESSWORK. MAKING READY MADE EASY

QUADS

WRITE FOR SPECIAL PRICES AND DISCOUNTS

COR. WATER AND FREDERICK STS.
BALTIMORE, MD.

CHAS. B. CONNER, MANAGER.

SHERWOOD BOBBIN & MFG. CO

Greensboro, N. C.

MANUFACTURERS OF

Speeder, Slubber, Intermediate and Twister Bobbins, Skewers, Spools, Spool Skewers and Clearer Rolls.

SAVOGRAN KEEPS **FLOORS** AND SURFACES **CLEAN**

Highest Awards. INDIA ALKALI WORKS, 28-37 India Wharf, BOSTON. "26 years at it."

Cotton Oil & Fibre Co.

Southern Office and Works: Norfolk, Va. Land Title Bldg: Philadelphia, Pa.

Producers of

Crude and Refined Cotton Seed Oil,

Cotton Seed Cake, Hulls, Mixed Hulls, Linters, Etc.

Prime Cotton Seed Meal "Cofco" Brand.

Samples Free On Request. Net 100 Lbs. Fully Decorticated.

Guaranteed Analysis:

Ammonia	Not Less	Than	8.50	Per Cent.
Nitrogen	" "	"	7	"
Protein	" "	"	43	"
Crude Oil and Fat	" "		9 to 10	"

THE D. A. TOMPKINS CHARLOTTE, N.C. COMPANY

COTTON MILLS

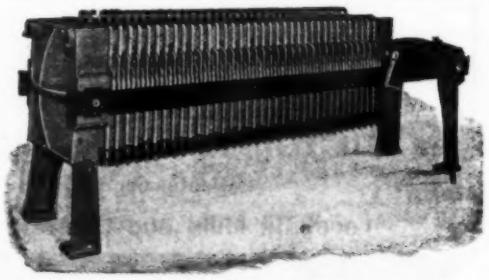
The "JOHNSON" Sugar Filter Press,

Specially designed for Plantation Sugar Houses and Sugar Refineries.

Reduces the loss from fermentation and inversion to a minimum.
Insures an increased yield of Crystalizable Sugar.

Twenty-five years' practical experience enables us to build Filter Presses that are the Standard for Cotton Seed Oil, Sugar House, Abattoir Color and Paint, Varnish, Clay, Mining and all other Special Work.

SEND FOR CATALOGUE.



JOHN JOHNSON & CO., FRANKLIN SQUARE, NEW YORK, U. S. A.

SOUTHERN COTTON OIL COMPANY,

HEAD OFFICE: 11 BROADWAY, NEW YORK.

Mills and Refineries in Georgia, North and South Carolina, Alabama, Tennessee, Arkansas, Louisiana and Texas.

MANUFACTURERS OF ALL COTTON SEED PRODUCTS.

Oil Cake and Meal, Hulls, Linters, Soap Stock and Soap.

Refiners of

COTTON OIL,

All Grades.

Manufacturers of

LARD COMPOUND

AND

Wesson Cooking Oil.

Refineries Located at—Savannah, Augusta and Atlanta, Ga.; Charleston, S. C.; Charlotte, N. C.; Montgomery, Ala.; Houston, Tex.; New Orleans, La.; Memphis, Tenn., and Little Rock, Ark.

GOLD MEDALS AWARDED.

CHICAGO 1893.
PARIS 1900.

The American Cotton Oil Company,

27 Beaver Street, New York City.

MANUFACTURERS AND REFINERS.

COTTONSEED PRODUCTS.

Oil, Cake, Meal, Linters, Ashes, Hulls.

GOLD MEDALS AWARDED

BUFFALO 1901.
CHARLESTON 1902.

Peters AMMUNITION

ONCE TRIED is **ALWAYS USED.**—The line of **Shotgun Ammunition** is the most complete on the market. The line of **Metallic Cartridges** is the Most Perfect Made. Progressive Dealers Sell It.

Hibbard, Spencer, Bartlett & Co., Chicago, Ill.
Charles G. Grubb, Pittsburg, Pa.
F. B. Chamberlain Co., St. Louis, Mo.

Eastern Department: 98 CHAMBERS STREET, NEW YORK.
T. H. KELLER, MANAGER.

THE PETERS CARTRIDGE CO.
CINCINNATI, OHIO.

Pocahontas Coal

SMOKELESS, SEMI-BITUMINOUS.

Is the Standard Steam Fuel for the World.

CASTNER, CURRAN & BULLITT, Sole Agents, PHILADELPHIA.

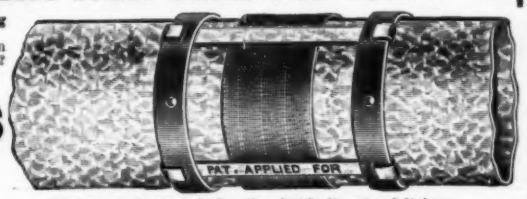
BRANCH OFFICES:

1 Broadway, New York. 70 Kilby Street, Boston, Mass. Citizens Bank Bldg., Norfolk, Va.
Neave Building, Cincinnati, O. Terry Building, Roanoke, Va. Old Colony Building, Chicago, Ill
4 Fenchurch Avenue, London, England.

TALLERDAY'S SHEET STEEL WATER PIPE FOR MINE OR IRRIGATION USE.

Transportation and connecting in difficult places is EASY. Why not save a lot of money on long lines by using this pipe?

WE BUILD **TANKS** FOR ALL PURPOSES

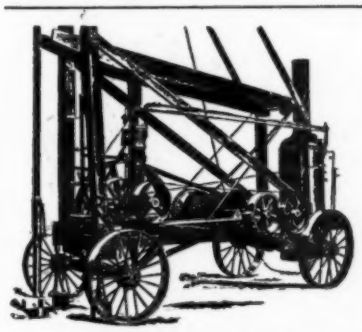


Made in single sheets in lengths of 10 ft. No. 12 and lighter.
Heavy Culvert Pipe a Specialty.

Write us stating requirements. TALLERDAY STEEL PIPE & TANK CO., WATERLOO, IOWA.

FIRE HYDRANTS. STOP VALVES. GENERAL FOUNDRY WORK.

THE GLAMORGAN PIPE & FOUNDRY CO. LYNCHBURG VA.



WE ARE MANUFACTURERS OF

Portable Drilling Machinery,

Run by Steam, Gasoline or Horse-power; for Water, Oil or Gas Wells, any depth. Forty-two different styles. Send for Catalog "A."

KELLY & TANEYHILL CO.
68 Chestnut Street, WATERLOO, IOWA.

The Pump that Pumps **SPRAY PUMPS** Double-acting, Lift, Power, Tank and Spray

MYERS PUMPS Store Ladders, etc. Barn Door Hangers **HAY TOOLS** of all kinds. Write for Cir's and Prices

Glass Valve

F. E. MYERS & BRO. Ashland, O.

A. C. Danner, Prest. J. C. Strong, Sec'y & Treas.

MOBILE COAL COMPANY,

COAL

AT WHOLESALE AND RETAIL.

CARGO & BUNKER COAL furnished promptly.

Main Office, 67 St. Francis St., **MOBILE, ALA.**

ERIE PUMP & ENGINE CO.
ERIE, PA., U. S. A.

VERTICAL ENGINES,

CENTRIFUGAL PUMPS.

Horizontal, Vertical, Direct Connected. Write for prices. Prompt Delivery.

SECOND HAND

Printing Presses, Paper Cutters.

The Cheapest Place to Buy
SPACES and QUADS.

Write for Prices and Discounts.

SPENCER & HALL,
Type Founders and Electrotypers,
BALTIMORE, MD.

If you wish to keep posted on the progress of the South, read the Manufacturers' Record. Price $4 a year.

ALABAMA CONSOLIDATED COAL & IRON CO.

BIRMINGHAM, ALA.

Manufacturers of the Celebrated Brands of

FOUNDRY IRON:

"Clifton" and "Etowah"

Also Miners and Shippers of HIGH-GRADE STEAM COAL, and Makers of the Well Known **"STANDARD"** FOUNDRY COKE.

Selling Agents for the North and West: **MATTHEW ADDY & CO.** CINCINNATI, CHICAGO, ST. LOUIS, PITTSBURGH, PHILADELPHIA, NEW YORK.

MOBILE COAL CO., Agents for Coal and Coke in the Mobile Territory.

W. K. NIVER COAL CO.

Miners and Shippers of the Celebrated

Pen Mar Big Vein Cumberland and Paint Creek Kanawha Splint, Steam and Gas COALS.

Unexcelled for Steam and Smithing Purposes,

General Offices, Continental Trust Bldg., Baltimore, Md.

BRANCH OFFICES:

625 Marquette Bldg., CHICAGO. 1021 Union Trust Bldg., CINCINNATI, O
101 Milk St., Boston, Mass. 200 E. Genesee St., Syracuse, N. Y. Altoona, Pa.

Shipping Wharves: BALTIMORE, NEWPORT NEWS, PHILADELPHIA AND STATEN ISLAND.

Burroughs & Kramer, Durham, N. C.
Selling Agents for North and South Carolina.

DAVIS COAL AND COKE CO.

MINERS AND SHIPPERS

DAVIS LOCOMOTIVE, STEAM AND SMITHING COALS,

Sole Agent for Elk Garden **Big Vein Cumberland Coal.**

DAVIS COKE FOR ORE SMELTERS, FOUNDRIES, AND FAMILY USE.

Shipments to all points accessible to rail or water.

BALTIMORE. PHILADELPHIA. NEW YORK. BOSTON.

INCORPORATED 1884

KENSEE

STANDS FOR ALL THAT IS BEST IN BLUE-GEM AND JELLICO COALS

ADDRESS MAIN JELLICO MT. COAL CO. KENSEE, KY.
(TELEGRAPH JELLICO, TENN.)

CAMERON STEAM PUMPS

WRITE.
ASK.
LEARN.

MINES,
REFINERIES,
BREWERIES,
BOILER FEEDING.

When you get right down to the point, you will find there are no better pumps than Cameron Steam Pumps.

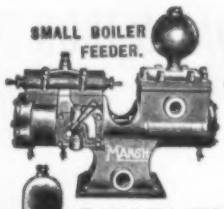
TANNERIES,
IRRIGATING,
FIRE PURPOSES,
RAILROADS.

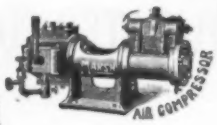
THEY HAVE NO OUTSIDE VALVE GEAR.

A. S. CAMERON STEAM PUMP WORKS,

Foot of East 23d Street, NEW YORK.

SMALL BOILER FEEDER.

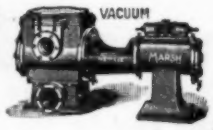




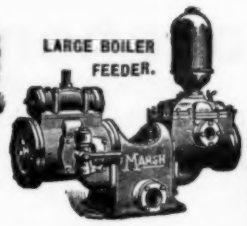
MARSH STEAM PUMPS

MANUFACTURED BY

AMERICAN STEAM PUMP COMPANY,



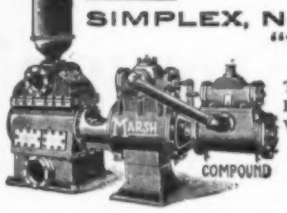
LARGE BOILER FEEDER.



SIMPLEX, NOT DUPLEX.
"To be simple is to be great."

Tobin Bronze Piston Rods.
Phosphor Bronze Valves.
Valve Seats, Stuffing Boxes and Removable Water Cylinder Linings.

Write for Catalogue No. 11.



MINIMUM OF WEIGHT, WEAR AND WASTE.

MAXIMUM OF STRENGTH SIMPLICITY AND SERVICE.

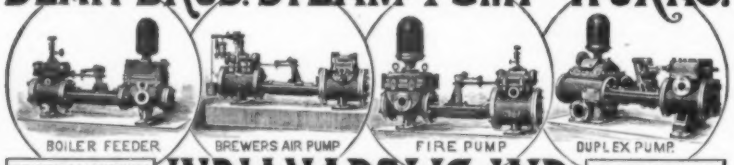
BATTLE CREEK, MICHIGAN, U. S. A.

Patent Self-Governing Steam Valve.
Patent Easy-Seating Water Valves
No Outside Valve Gear.

50,000 SOLD IN THIRTEEN YEARS.

NEW YORK, 105 Fulton St.
BOSTON, 81 Milk St.
PROVIDENCE, 21 Eddy St.
CHICAGO, 32-34 W. Randolph St.
ST. LOUIS, 718-724 Charles St.
PITTSBURG, 14 Market St.
NEW ORLEANS, 201-203 Magazine St.
MEMPHIS, 326 Front St.
KANSAS CITY, 408-412 W. Fifth St.
OMAHA, 1014-1018 Douglas St.
DALLAS, 177-179 Elm St.
SAN FRANCISCO, 31 Main St.
LOS ANGELES, CAL., 334-338 N. Main St.
PORTLAND, ORE., 85 First St.
SEATTLE, WASH., 119 Jackson St.
CLEVELAND, 95-105 St. Clair St.
DENVER, 1621-1639 17th St.
DETROIT, 97-101 Woodbridge St., West.
NORFOLK, 74 Commercial Place.
PHILADELPHIA, 1744 Market St.
MONTGOMERY, foot of Coosa St.
SAVANNAH, 126-130 Bay St.
CINCINNATI, 522 Main St.
ROCHESTER, 268-272 State St.
TOLEDO, 1-9 St. Clair St.

DEAN BROS' STEAM PUMP WORKS.



PUMPING MACHINERY FOR ALL PURPOSES.

INDIANAPOLIS, IND.

SEND FOR CATALOGUE AND PRICES.

Requires No Oil,

because there are no movable working parts in a

PULSOMETER STEAM PUMP.

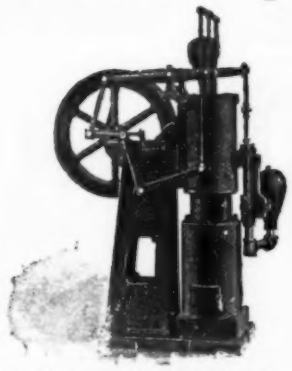
Handles muddy, gritty water with ease.

Send for Catalog.

Pulsometer Steam Pump Co.
125 Greenwich St., NEW YORK.

DENNEY IMPROVED

Rider & Ericsson Hot Air Pumps.



Reliable, Economical, Safe and Noiseless.

Always ready for service. Can be operated by any one. Use any kind of fuel. Built for years by

AMERICAN MACHINE CO., Wilmington, Del.

Agents—The Tribune Hardware Specialty Co., 105 W. Fayette St., Baltimore, Md.
Send for Catalogue R.

ALBERGER COOLING TOWERS

IMPROVED CONDENSING APPARATUS VACUUM PUMPING MACHINERY

Send for Illustrated Catalogue.

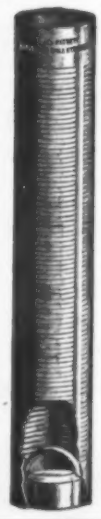
ALBERGER CONDENSER COMPANY, 95 Liberty St., NEW YORK

LET US HAVE YOUR SPECIFICATIONS FOR SINGLE DUPLEX & ROTATIVE STEAM AND POWER

PUMPS

THE JOHN H. McGOWAN CO. CINCINNATI

SIMPLE COMPOUND & COMPOUND CONDENSING ELEVATOR & WATER WORKS PUMPING ENGINES



THE COOK WELL ...CO...

ST. LOUIS, MO., U. S. A.

Cook's System of Wells
FOR
Cities, Towns, Villages, Railroads, Ice Plants, Breweries and Manufacturers.

Cook's Patent Brass Tube Well Strainer.

Cook's Deep Well Pumping Engines.

Estimates furnished upon application. Write for Catalogue and Prices.

PERRY ANDREWS & BRO.

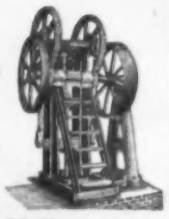
ARTESIAN
AND
OIL WELL CONTRACTORS
AND
DRILLERS.

Have had years of experience in Oil Well Drilling.

Porter Place,
ATLANTA, GA.

GET THE LATEST
DEEP WELL
Pumping Machinery
of large and small capacities.

STEAM AND POWER PUMPS
The most economical Deep Well Pumps on the market.



Downie Pump Co., Box 21, Downieville, Pa.

HENRY R. WORTHINGTON

PUMPING MACHINERY.

Marine Air and Feed Pumps a Specialty.

Boston, Chicago, Philadelphia, St. Louis, Butte

WATER METERS

Cleveland, Pittsburg, Atlanta, San Francisco, New Orleans

116 Liberty St., New York.

Well Drilling Machines

Over 70 sizes and styles, for drilling either deep or shallow wells in any kind of soil or rock. Mounted on wheels or on sills. With engines or horse powers. Strong simple, durable. Any mechanic can operate them. Send for catalog.

WILLIAMS BROS. ITHACA, N. Y.

Water Supply

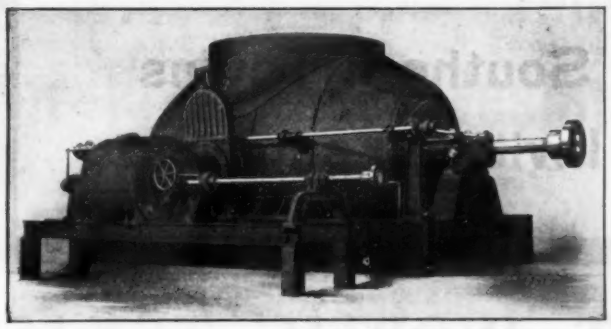
For Towns, Cities, Mills and Industries of every kind. Well Systems and Air Lift Plants Installed Complete.

The BACON AIR LIFT CO.
92 William St. NEW YORK.

Sole Owners and Manufacturers of the Simple and Compound BACON AIR LIFT PUMPS

Pair

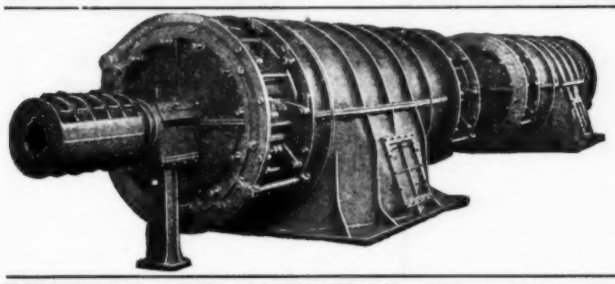
McCormick Turbines,



4000 H. P., 72 ft. head, arranged to drive generator and a single turbine to drive exciter. Two settings like cut and 3 each of 5300 H. P., built for the Hudson River Water Power Company for their Spier Falls plant and 14 pairs 51 inch wheels for their plant at Mechanicsville, N. Y.

S. MORGAN SMITH COMPANY, York, Pa., U. S. A.

Write for Catalogue if contemplating purchase of Turbines.



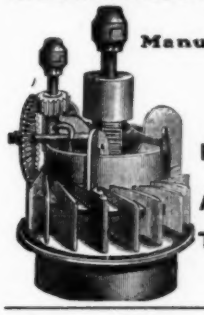
SAMSON TURBINE

HIGH EFFICIENCY at reduced gateage, QUICK SPEED and GREAT POWER are the three essential points demanded of a turbine driving GENERATOR. No other turbine maintains these three points to such a high degree of perfection as the SAMSON.

WRITE DEPT. "A-2" FOR CATALOG.

THE JAMES LEFFEL & CO., Springfield, Ohio, U. S. A.

RISDON-ALCOTT TURBINE CO., Mount Holly, N. J., U. S. A.



Manufacture **Turbines**

to meet all conditions, either on a vertical or a horizontal shaft. Possessing high speed, great wearing qualities and easy to control. Adapted for any water power.

Risdon Cylinder and Register Gate Turbines.

Tests in Holyoke Flume:	Full Gate	¾	½	¼	Average
	.8094	.8472	.8014	.7601	.8195

Alcott's High-Duty Turbine,
High Efficiency, Easy Working Gate. Simple, Durable.

Taylor Sleeve-Gate Turbine.
Largest Power ever obtained from a wheel of the same dimensions. Are manufactured solely by us. If interested let us tell you more about them.

How About Your Water Supply?

Our **NIAGARA HYDRAULIC ENGINE** is a development of the principle of the hydraulic ram. It will work where other rams will not, and will pump two to five times as much water under same conditions. The Niagara machine is the only one capable of large work, and our larger sizes will pump 250,000 gallons a day. Water for towns, mine washers, power plants, railroad tanks, factories, etc., supplied by larger sizes, while small machines will supply farms, dairies, country homes, etc. The Niagara needs no attention or expense. Simple, durable, effective. Easily erected and can be moved anywhere. Correspondence invited and agents wanted. Send for catalogue.

NIAGARA HYDRAULIC ENGINE CO., Box 78, Chester, Pa.

Our Specialties:

CAST IRON PIPE, all kinds and sizes, Fire Hydrants, Gate Valves and Valve Indicator Posts, Hydraulic Tools, Steam Pumping Machinery, Gas Holders, etc. Gas Power Plants with Producers.

See Special Catalogue.

R. D. WOOD & CO.,

400 Chestnut Street, Philadelphia.

TAYLOR SPIRAL RIVETED PIPE.

FOR Water Lines, Irrigation Centrifugal Pumps and Exhaust Steam Systems, **SPIRAL RIVETED PIPE** is especially adapted. Allow us to send catalogue and quote prices.

AMERICAN SPIRAL PIPE WORKS,

Main Office and Works, CHICAGO.
New York Office, 26 Cortlandt St

UNITED STATES CAST IRON PIPE & FOUNDRY COMPANY,

Railroad and Township Culverts, Flange Pipe and Special Castings of every description.

MANUFACTURERS OF

All Sizes, 3 to 72-in. Internal Diameter.

Gen. Offices: Chicago, Ill. Eastern Offices: Phila. Southern Offices: Chattanooga, Tenn.

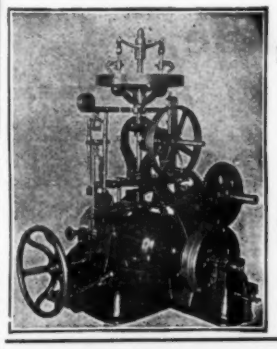
CAST IRON PIPE

The Dimmick Pipe Co.

Makers of VALVES and HYDRANTS. Special Castings of Every Description, Birmingham, Ala.

New York, 29 Broadway. Philadelphia, 1051 Drexel Bldg.
San Francisco, 31 New Montgomery St. St. Louis, 20 Equitable Bldg.
Pittsburg, 513 Fitzsimons Bldg.

WATER WHEEL **GOVERNORS,**



—FOR—

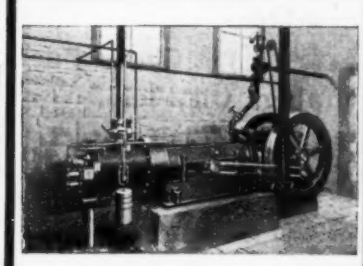
Electric Light, Power and Railway Stations

—ALSO—

Paper and Textile Mills.

The Replogle Governor Works

South Broadway, AKRON, O.



Compressor for Pumping Purposes.

We install the best systems of pumping by compressed air.

The Air Lift System
The Harris System
The Halsey Pump

If you are about to install a large pumping plant write us.

PNEUMATIC ENGINEERING COMPANY,

128 Broadway, New York.

Star Drilling Machine Co.

Manufacturers of

PORTABLE DRILLING MACHINES

For Water, Oil or Gas Wells.

Send for Catalogue "D."

104 Fulton St., New York.

Factory at AKRON, OHIO. Cable, "Drof." Tel., 2440 B John.

ARTESIAN WELLS Any depth from 10 to 2000 feet, in any part of the country.

Soundings made for Foundations. Test Boring for Water.

Write for references and particulars.

ISAAC H. FORD, 104 Fulton St., New York.

20 Years' Experience.

DAVIS FOUNDRY AND MACHINE WORKS.

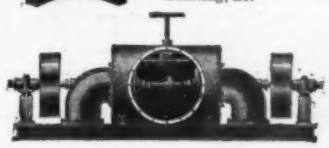
ROME, GA.

DAVIS

Double Turbine WATER WHEEL

Beyond all question one of the Best Wheels on the market, and is fully guaranteed.

We are prepared to bid on furnishing Water Wheels, &c., for complete Power Plants of any capacity. Also Gearing, Pulleys, Hangers, Shafting, &c.



Southern Towns Inviting Factories.

FORT WORTH, TEXAS.

The Railway Center and Packing House Center

OF THE SOUTHWEST.

Growing Rapidly and Substantially.

An unsurpassed location for the investment of Capital and the establishment of factories. For information address

Board of Trade,

Fort Worth, Texas.

RAYNE, LA.

A prosperous town drawing support from the three great staples of the South—Cotton, Sugar and Rice. A centre for Poultry and Truck with considerable manufacturing interests, wants more manufactures and offers

Free Sites. Cheap Fuel.

Only 14 Miles From Jennings Oil Field.

Exemption From Taxation. Cash Interest.

Wants Especially a Small COTTON-OIL MILL.

——ADDRESS——

C.W. LYMAN, Secretary Progressive Union, Rayne, Acadia Parish, La.

ATHENS, GA.

Within forty miles of the Blue Ridge Mountains. Population 14,000.

Offers unequaled Inducements to Home-Seekers and Investors.

Climate unsurpassed, health unequalled. Educational Center of Georgia. Railroad facilities ample. Cotton receipts 80,000 bales per annum. Building material cheap. Labor abundant. Special inducements to secure new manufactories. Address

T. W. REED, Sec'y Athens Chamber of Commerce.

LOUISIANA'S INVITATION.

Provisions of Article 230 of the Constitution of the State of Louisiana.

"There shall also be exempt from parochial and municipal taxation for a period of ten years from the first day of January, 1900, the capital, machinery and other property employed in mining operations and in the manufacture of textile fabrics, yarns, rope, cordage, leather, shoes, harness, saddlery, hats, clothing, flour, machinery, articles of tin, copper and sheet iron, agricultural implements, and furniture and other articles of wood, marble or stone; soap, stationery, ink and paper, boat building and fertilizers and chemicals; provided, that not less than five hands are employed in any one factory."

LAFOURCHE PROGRESSIVE UNION, Thibodaux, La.

BLACKSBURG, S. C.

invites additional manufacturing enterprises, capital and a good class of new citizens. Location centre of Piedmont belt, altitude 1000 feet, natural facilities unsurpassed, good water and climate, best of railroad facilities N., S., E. and W. Western Union and Postal Telegraph, Local and Long Distance Bell 'Phones.

Will give Sites, and exempt from Municipal Taxes for a term of years, and all other aid possible.

Address P. R. FREEMAN, Sec'y and Treas., BLACKSBURG BUSINESS MEN'S LEAGUE.

Lynchburg

requests your presence. To manufacturing enterprises seeking locations we extend the right hand of good fellowship—the hand is not empty nor filled with emptier promises. Lynchburg is a live town and wants more live business interests—means to have them.

We own 67 acres of good level land on the banks of the James, and on the tracks of the C. & O., two miles from Lynchburg. We will give you as much of this as you need for your plant, free of cost. There is unlimited power—hydraulic and electric—immediately at hand; which we will supply to you at a low rate. We are willing to go down after the good hard dollars to get more good sound enterprises among us; every inducement to the right kind of people.

Lynchburg is on three lines of railway and is the center of the richest and most prosperous section of Old Virginia.

We mean business—don't write unless you do.

The Lynchburg Traction & Light Co.

Lynchburg, Va.

R. D. Apperson, President.

Brinkley, Ark.,

is a good location for any kind of manufacturing business. For particulars write the

Secretary of the Brinkley Business Men's League.

Pittsburg Visible Typewriter.

The Only Perfect Machine Made.

The printing is in plain view of the operator all the time—simplest and strongest construction, rapid action, easy touch—adapted to all kinds of work—best for tabulating and invoice work—universal keyboard—removable type action—instantly cleaned.

Treble the life of any other machine for good, clean work.

SEND FOR CATALOGUE.

Pittsburg Writing Machine Co.

208 Wood Street,

PITTSBURG, PA.

Why Buy a Smith Premier Typewriter ?

BECAUSE of its Simple, Frictionless Mechanism.

BECAUSE of its Complete Keyboard.

BECAUSE of its Automatic Typecleaning Device.

BECAUSE of its Perfect Work.

BECAUSE of its Durability.

Catalogue Sent Free.

The Smith Premier Typewriter Co.,

118 St. Paul St., Baltimore, Md.

Railroads Inviting Factories.

$100,000 Subscribed Site Donated

and the citizens of one of the best communities on our line are making determined efforts to locate a cotton mill and knitting mill.

They want to get in touch with a brainy, experienced operator, who can subscribe some stock and assume active management of the plant.

The immediate section produces cotton of the finest staple; the farmers themselves have subscribed stock and are interested in the success of the venture. Cheap fuel, intelligent white labor, low rates on the finished product are some of the attractive features.

For additional information address

J. W. WHITE,

General Industrial Agent,
Portsmouth, Va.

Seaboard Air Line Railway.

If you want to move your plant South write us.

Splendid Opportunities For Profitable Investments.

MANUFACTURERS

before locating elsewhere should examine the

Excellent Locations for Factories of All Kinds

existing along the

Southern Railway and Mobile & Ohio Railroad.

Abundance of raw material, cheap fuel, plenty of good labor and unsurpassed transportation facilities tend to make the territory traversed by these lines superior for the successful investment of capital in

Textile Mills, Lumber Mills, Furniture Factories, Iron and Steel Works, Etc.

For further and detailed information address,

M. V. RICHARDS,
Washington, D. C.

Land and Industrial Agent:
SOUTHERN RAILWAY and MOBILE & OHIO RAILROAD.

Come to West Virginia.

Why? It has more and a greater variety of undeveloped resources close to Eastern and Western markets than any other State. The WEST VIRGINIA CENTRAL & PITTSBURG RAILWAY penetrates the heart of the virgin timber forests and coal deposits. Cheap fuel, cheap raw material and unsurpassed railway facilities make that territory most desirable for manufacturing industries. For information in regard to timber and coal lands and manufacturing sites address

HOWARD SUTHERLAND,
Gen'l Land Agent, ELKINS, W. VA.

YOUR ATTENTION, PLEASE!

Virginia

offers a number of fine openings in the line of

MINING, MANUFACTURING and FARMING.

Along the lines of the

Norfolk and Western Railway

are hundreds of towns extending you a hearty welcome.

Address, for pamphlets and information,
W. B. BEVILL, G. P. A. PAUL SCHERER, Agt. Lands & Industries.
ROANOKE, VA.

DETROIT AND BUFFALO STEAMBOAT Co.

QUEENS OF THE LAKES

Steamers Eastern States and Western States

$3 SAVED TO ANY POINT WEST

Lv. BUFFALO daily 5.30 P. M., ar. DETROIT 7.30 A. M., connecting with all trains West and D. & C. for Michigan resorts. Lv. DETROIT daily 4.00 P. M., ar. BUFFALO 7.30 A. M. Fare: $4.50 one way, round trip $6.50. Berths $1.00 and $1.50, rooms $2.50, parlors $5.00 each way. Week End Excursions DETROIT and Return, $2.50. Send 2c. for illustrated pamphlet. Address A. A. SCHANTZ, G. P. T. M., Detroit, Mich.

BALTIMORE STEAM PACKET CO.

OLD AND RELIABLE

BAY LINE.

CARRYING U. S. MAIL.

Elegant Steamer Daily, except Sunday, from "BAY LINE" PIERS, 10-13 LIGHT STREET, at 6.30 P. M., for OLD POINT COMFORT, NORFOLK, PORTSMOUTH AND ALL POINTS SOUTH. Connects at Old Point Comfort, Va., with O. & O. R. R. for Richmond. Connects at Portsmouth with Seaboard Air Line, solid train Portsmouth to Atlanta. At Norfolk, connects with Atlantic Coast Line, Norfolk & Carolina, Norfolk & Southern and Norfolk & Western Railroads, and with Old Dominion Line for New Berne and Washington, N. C.

Meals on the European plan. Luxurious Staterooms, Electric Lights, Steam Heat. Berths Free. Reserve staterooms in advance at Bay Line Ticket Office, 103 East Baltimore St.; Albaugh's, 15 N. Charles St., and Seaboard Air Line Office, Continental Trust Bldg.

Telephone C. & P. 1435; Maryland, Courtland 485.

EMMET BROWN, General Pass. Agent.
KEY COMPTON, General Freight Agent.
JOHN R. SHERWOOD, V.-P. and Gen. Mgr.

CHESAPEAKE STEAMSHIP COMPANY.

"Chesapeake Line."

Elegant passenger steamers AUGUSTA and ATLANTA, for Old Point Comfort and Norfolk, Va. Steamers leave Baltimore daily (except Sunday) at 6.30 P. M.

"York River Line."

Elegant passenger steamers CHARLOTTE and BALTIMORE, for West Point and Richmond, Va. Steamers leave Baltimore Daily (except Sunday) at 5 P. M., and arrive West Point 7.30 A. M, and Richmond at 9.15 A. M.

Steamers leave Baltimore from Piers 18 and 19 Light Street Wharf.

Through tickets to all points can be secured, baggage checked and staterooms reserved from the City Ticket Offices, Nos. 109, 120 and 127 E. Baltimore Street or the General Offices, 530 Light Street, Baltimore, Md.

REUBEN FOSTER, General Manager. E. J. CHISM, General Passr. Agent.
T. H. McDANNEL, Traveling Passenger Agt.

INVESTIGATE!

That means examine the

STIEFF PIANOS

as well as others. You will find in it merits that deserve your consideration.

You Know Its Reputation.

You know it's made at home.
You know your friends use and like it.
You know it's been established since 1842.

If You Can't Pay Cash, Buy and Pay Monthly

OTHER PIANOS—New and Second-Hand.

Uprights—$100—$150—etc., up.
Squares—$20—$35—up.
Organs—$20—up.

STIEFF'S, 9 N. Liberty St.
BALTIMORE, MD.

Thos. W. Simpers & Co.

Crozer Bldg., Philadelphia.

Plates, Sheets, Roofing, Bars, Shapes, Tin and Terne Plates.

LIGHT RAILS A SPECIALTY.

HELP WANTED.

Advertisements under this head will be inserted at the rate of one cent a word for each insertion.

HELP WANTED.—Draftsmen and Engineers. All classes of work. Over 5000 positions filled in 10 years. ENGINEERING AGENCY, 18 Monadnock Block, Chicago.

AGENT WANTED by Paint Manufacturers. One with connection among structural iron works, contractors, railroads, etc. Liberal contract. ARLINGTON MFG. CO., Canton, Ohio.

SPRAGUE CANNING MACHINERY COMPANY
48 RIVER ST. CHICAGO, ILL.

Merchants & Miners' Transportation Company's

STEAMSHIP LINES.

For BOSTON and the EAST—Every Monday, Tuesday, Thursday and Saturday at 6 P. M.

For PROVIDENCE and the EAST—Every Wednesday, Friday and Sunday at 6 P. M.

For SAVANNAH and the SOUTH—Every Tuesday, Thursday and Saturday at 6 P. M.

For NEWPORT NEWS and NORFOLK—Daily at 6 P. M.

Accommodations and Cuisine Unequalled.
Freight handled with care and dispatch.

C. R. GILLINGHAM, Agent, Long Dock.
W. P. TURNER, G. P. A.
C. S. HOSKINS, G. F. A.
A. D. STEBBINS, G. M.
J. O. WHITNEY, 2d V.-P. and T. M.
General Offices—214 E. German St., Balto., Md.

THE GENERAL ELECTRIC COMPANY'S

Machine Shop Arc Lamp

is the best helper that can be given your workmen.

Write for description

GENERAL OFFICES. SCHENECTADY, N. Y.

New York Office, 44 Broad Street. Sales Offices in All Large Cities.

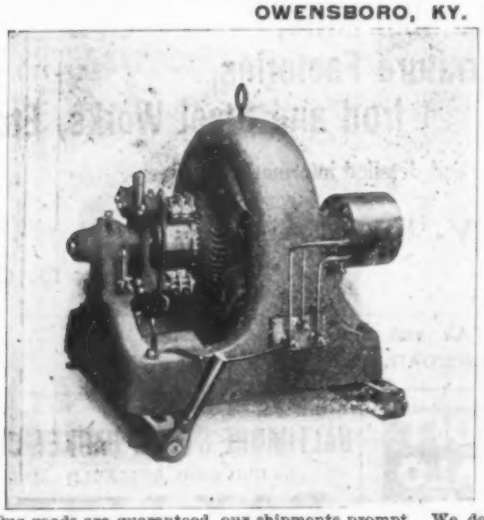
"Ours is the Light of the World."

KENTUCKY ELECTRICAL CO., Incorporated,

MANUFACTURERS OF

Incandescent Lamps, Motors and Dynamos.

OWENSBORO, KY.



Our goods are guaranteed, our shipments prompt. We do not belong to the combine. Write for prices.

FLORIDA ELECTRIC CO.

Electrical and General Engineers.

JACKSONVILLE, FLA.

Southern Agents for

De Laval Steam Turbines.
Curran's Electric Elevators.

A complete line of Motors, Dynamos and Electrical Supplies of all kinds constantly on hand.

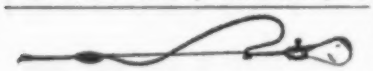
W. H. JENKS,

Electrical Contractor,

AND DEALER IN

ELECTRICAL SUPPLIES OF EVERY DESCRIPTION.

617 E. Main Street, Richmond, Va.



Morse Automatic Lamp Adjuster for Mills, Factories and Shops. We also manufacture the Webster Angle Adjuster, Combination Shades and Lamp Guards. Send for Illustrated Price List.

INCANDESCENT ELECTRIC LIGHT MANIPULATOR CO
116 Bedford Street, Boston, Mass.

BALTIMORE-MARYLAND ENGRAVING CO.
BALTIMORE, MD.
Illustrators Designers
HALF-TONES
ELECTROTYPES
ZINC CUTS

ELECTRIC SUPPLY CO. 40 DRAYTON ST.
ARMATURE WINDING AND ELECTRICAL REPAIR WORK OF EVERY DESCRIPTION
SAVANNAH, GA.

Packard

Lamps, Transformers, Insulating Cloths and Varnishes

NEW YORK & OHIO COMPANY,
410 North Avenue, Warren, Ohio.
NEW YORK OFFICE: 1 Broadway.

STANDARD ELECTRIC CO.

Main Office, NORFOLK, VA.

BRANCH OFFICES: CHARLOTTE, N. C.; ATLANTA, GA.

Supplies — WE SELL EVERYTHING ELECTRICAL, which includes Supplies for Lighting, Combination Fixtures of every description, Telephones, Switchboards and all Accessories, wholesale and retail.

Construction — We will furnish your Mill, Shop or Factory, with a complete Electrical Equipment and GUARANTEE our work.

Railways — WE ARE ELECTRICAL ENGINEERS and as such finance the building of and also equip new Electric Railways. You can purchase from us a complete line of Electric Railway Supplies.

"A Word to the Wise is Sufficient"

WE

are manufacturers of chandeliers. We are more, we are artist designers and originators.

Chandeliers made by us are works of art.

CHAS. POLACHECK & BROS. CO.
429-431 Chestnut St., Milwaukee, Wis.

If you wish to keep posted on the progress of the South, read the Manufacturers' Record. Price $4 a year.

Telephone Systems

FOR

Factories and Mills.

Easy to Install.

Instruments $2.50 to $4.50.

Write for Circulars and Estimates.

Piedmont Elec. Co., Asheville, N. C.

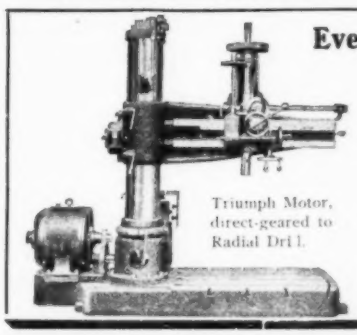
WHEN IN NEED OF

Insulator Pins, Red Cedar or Chestnut Telephone Poles, or Red Cedar of Any Description,

— do not fail to correspond with —

HOUSTON & LIGGETT, Lewisburg, Tenn.

XUM



Triumph Motor, direct-geared to Radial Drill.

Every Manufacturer . . .

can save money and increase his output by using

TRIUMPH MOTORS

to run his machine tools.
Can be applied directly to every machine
No power losses through overhead pulleys and line shafts
Economy of space, ease of operation, better work and more of it.
Ask for Bulletin "AM"

TRIUMPH ELECTRIC CO.
Cincinnati, Ohio, U. S. A.

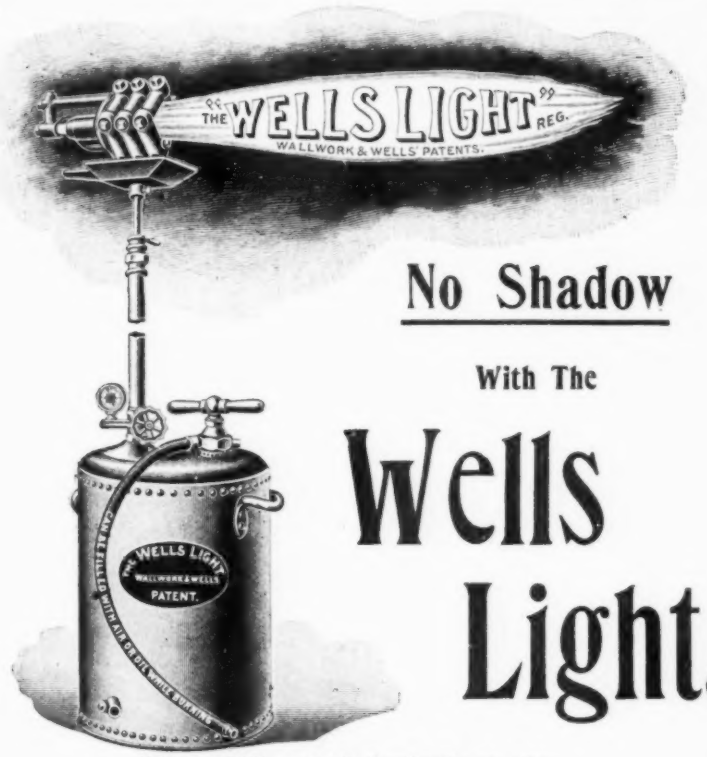
The S. B. Alexander, Jr., Co.

Engineers and Manufacturers

CHARLOTTE, N. C.

Wholesale and Retail Electrical Supply Dealers. Largest stock of Electrical Supplies carried south of New York. TWENTY-FIVE thousand Sawyer-Man Lamps carried in stock.

Textile, Engineers', Machinists' and Electrical Supplies.



No Shadow

With The

Wells Light.

800 to 2000 to 4000 Candle-Power from

KEROSENE OIL.

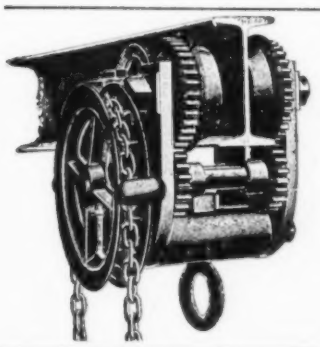
PORTABLE. LIGHT.

For Contractors, Railroad Construction, Dredges, Bridge and Dock Builders and Water Works.

Over 17,000 In Use.

WELLS LIGHT MFG. CO., 44 Washington St., N. Y.

EDWARD ROBINSON, Sole Proprietor. Send for Circular.



Moyer's

Overhead Tramrail Systems

will save you time, money and annoyance. Made for Heavy, Light or Special Work, will save its cost in a few months.
No trouble to answer questions.
Catalogue sent upon request.

J. W. Moyer & Co.

1733 Howard Street, Philadelphia, Pa.

"ALL THINGS ELECTRICAL"

Largest Stock of General Supplies in South.

—Agents for—

Duncan Meter Co., Sawyer Man Inc. Lamp Co., Nernst Lamp Co. Westinghouse Elec. & Mfg. Co. Deveau Telephone Co.

Write for our catalogue and prices.

ELECTRICAL MATERIAL CO., *BALTIMORE, MARYLAND.*

WESCO. WESCO.

Everything Electrical

Largest and most complete stock of Electrical Supplies and Construction Material in U. S.

We can furnish anything pertaining to the construction, operation, maintenance or equipment of

Electric Railways, Isolated Plants and Central Stations, Telephone Lines and Exchanges.

Western Electrical Supply Co.

Get Our Catalogues. ST. LOUIS, U. S. A.

EVERBEST EVERBEST

EVERBEST

We put this trade-mark on everything leaving our establishment. We handle nothing that will not come up to the standard of Everbest.

This trade-mark is your guarantee that anything bought from us will meet all requirements in a thoroughly satisfactory manner.

Our "Green Book" will give you valuable information about

Everything Electrical.

Ewing-Merkle Electric Co.

ST. LOUIS.

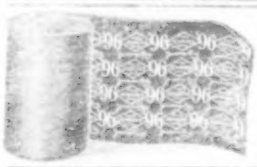
EVERBEST EVERBEST

Nickel Plating Outfits.

POLISHING MACHINERY.
CHEMICALS.
DYNAMOS.

THE HANSON & VAN WINKLE CO.
CHICAGO. NEWARK, N. J.
ADDRESS DEPARTMENT W

Motors. **COMMERCIAL ELECTRIC COMPANY,** INDIANAPOLIS, IND. Dynamos.



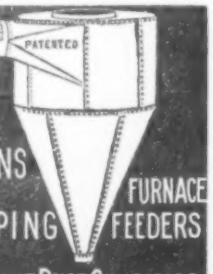
JENKINS '96 PACKING

Makes perfect joint instantly: does not have to be followed up. Makes joint that will last for years on all pressures of steam, oils, acids, etc. Does not rot, burn, blow or squeeze out. Received the highest award—GOLD MEDAL—at the Pan-American Exposition. All genuine stamped with Trade Mark.

Jenkins Brothers—New York, Boston, Philadelphia, Chicago.

THE ALLINGTON & CURTIS DUST & SHAVINGS SYSTEM IS THE BEST

FREE ESTIMATES BY EXPERTS



EXHAUST FANS & BLOW PIPING

FURNACE FEEDERS

"MORSE" CYCLONE DUST COLLECTORS

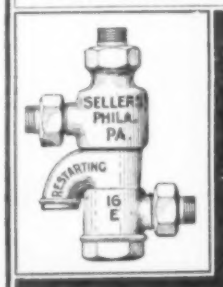
M'F'D BY THE ALLINGTON & CURTIS MFG CO SAGINAW, MICH.

PITLESS WAGON AND STOCK SCALES.

Complete Scale above the Ground. Steel Joist. Steel Frame. Frame 9 Inches High.

McDonald Bros., Box 515, Pleasant Hill, Mo.

Sellers' Restarting Injector



A strictly first class machine at moderate cost.

Perfectly automatic, has wide range of capacities, and raises water promptly with hot or cold pipes.

Very simple, has few parts and is easily repaired.

All parts interchangeable, made of the best bronze, and the workmanship is perfect. Send for special catalogue descriptive of this Injector.

JENKINS BROTHERS, Selling Agents
NEW YORK, BOSTON, PHILA., CHICAGO

Main Office, St. Louis, Mo. Branches, 116 N. 3d St., Phila.; Revere Rubber Co., New Orleans, La.

GRINNELL SPRINKLERS.

General Fire Extinguisher Company,

Executive Offices: Providence, R. I.

At Our New

Charlotte Plant,

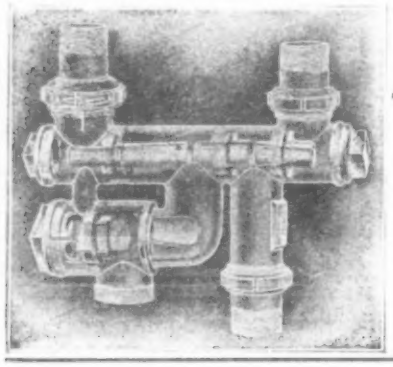
CHARLOTTE, N. C.

We carry the largest and best stock in the South of

Pipe, Fittings, Valves, Steam and Water Supplies

Pipe from ⅛ inch to 12 inches cut to measure. Orders executed promptly at lowest prices.

J. W. CONWAY,
Manager Southern Department.



A Wider Range of Work

Is accomplished by the

AUTO-POSITIVE

High Pressure Hot Water Restarting Injector

PENBERTHY

Than by any other boiler feeder retaining the automatic feature.

Send for circular containing full information.

Penberthy Injector Co., Detroit, Mich.

Largest Injector Manufacturers in the World.

Osgood

We solicit correspondence with the most particular weighers.

We make a full line of heavy scales for warehouse, store and farm use. Catalogue F for asking. We can save you money. Buy Scales with

"Osgood on the Beam."

Osgood Scale Company
Binghamton, N. Y.

To Manufacturers and Capitalists

Contemplating the Establishment of Industrial Enterprises.

Attention is called to the exceptionally favorable location of

NEWPORT NEWS, VA.,

on Hampton Roads, fifteen miles from the Sea. Deep water, railway and sea transportation facilities unrivalled. Climate salubrious. Apply to

C. B. ORCUTT, President.

OLD DOMINION LAND COMPANY
1 BROADWAY, NEW YORK

AUTOMATIC

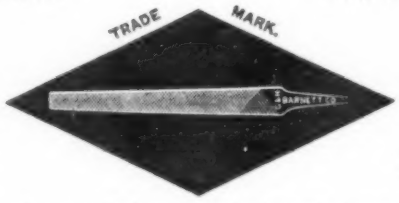
Send for Catalogue
RICHARDSON SCALE CO.
18-22 Park Row, N. Y.

SCALES

Black Diamond File Works

Established 1863. Incorporated 1895.

Twelve Medals Awarded at International Expositions.



Special Prize Gold Medal Atlanta, 1895.

Our Goods are on Sale in every leading Hardware Store in the United States and Canada.

G. & H. BARNETT CO., Philadelphia, Pa.

Prompt Shipments

OF

Open Hearth Steel Plates and Sheets,

3/16" to 1/20" thickness.

N. & G. TAYLOR CO.

Manufacturers of Tin Plate,

PHILADELPHIA.

Makers of the *TAYLOR OLD STYLE* Roofing Tin.

Operating the mills of the Maryland Sheet & Steel Co.

THE BALTIMORE SHIPBUILDING AND DRY DOCK CO.

Works at Locust Point, BALTIMORE, MD.

Shipbuilders in Iron and Steel. All Kinds of Marine Repairs, Dry-Docking. ENGINEERS AND MACHINISTS.

The... *Exhibition Department*

BOURSE

Offers you an opportunity to extend your business.

For full particulars address

Exhibition Department, THE BOURSE, Philadelphia.

THE SOUTHERN PIPE COVERING CO.

JOHN A. SELL'H, Prop.

Successors to THE SOUTHERN ASBESTOS MFG. CO., RICHMOND, VA.

Manufacturers of **Standard Asbestos-Magnesia Steam Pipe and Boiler Covering and Cements.** The only manufacturers of these materials in the South.

"PROVIDENCE" Best in the World. **WINDLASSES.** ***CAPSTANS***

BUILT BY THE

AMERICAN SHIP WINDLASS CO., Providence, R. I.

CHILLCOTT EVANS CHAIN CO., Allegheny, Pa.

Crane Chains, Log Chains, Tow Chains for River Navigation, Pole and Tongue Chains, Railroad Switch Chains, Wagon Lock Chains, Wagon Stay Chains, Rafting Chains, Railroad Brake Chains, Straight or Twist Link Binding Chain, Close Link, Self-Colored.

H. STEVENS' SONS CO., Macon, Ga.

Manufacturers of

Sewer and R. R. Culvert Pipe,

Fire Brick, Milled Clay Flue Pipe and Chimney Tops, Urns, &c. Correspondence Solicited.

DIXON'S FLAKE GRAPHITE